Naval Education and Training Command

NAVEDTRA 72443
November 1996
0503-LP-480-3500

Nonresident Training Course (NRTC)

Gunner's Mate 3 & 2

Only one answer sheet is included in the NRTC. Reproduce the required number of sheets you need or get answer sheets from your ESO or designated officer.

0503LP4803500

Although the words “he,” “him,” and “his” are used sparingly in this manual to enhance communication they are not intended to be gender driven nor to affront or discriminate against anyone reading this text.

GUNNER'S MATE 3 & 2
NAVEDTRA 72443

Prepared by the Naval Education and Training Professional Development and Technology Center (NETPDTC), Pensacola, Florida

Congratulations! By enrolling in this course, you have demonstrated a desire to improve yourself and the Navy. Remember, however, this self-study course is only one part of the total Navy training program. Practical experience, schools, selected reading, and your desire to succeed are also necessary to successfully round out a fully meaningful training program. You have taken an important step in self-improvement. Keep up the good work.

HOW TO COMPLETE THIS COURSE SUCCESSFULLY

ERRATA: If an errata comes with this course, make all indicated changes or corrections before you start any assignment. Do not change or correct the associated text or assignments in any other way.

TEXTBOOK ASSIGNMENTS: The text for this course is Gunner's Mate, NAVEDTRA 12443. The text pages that you are to study are listed at the beginning of each assignment. Study these pages carefully before attempting to answer the questions in the course. Pay close attention to tables and illustrations because they contain information that will help you understand the text. Read the learning objectives provided at the beginning of each chapter or topic in the text and/or preceding each set of questions in the course. Learning objectives state what you should be able to do after studying the material. Answering the questions correctly helps you accomplish the objectives.

SELECTING YOUR ANSWERS: After studying the associated text, you should be ready to answer the questions in the assignment. Read each question carefully, then select the BEST answer. Be sure to select your answer from the subject matter in the text. You may refer freely to the text and seek advice and information from others on problems that may arise in the course. However, the answers must be the result of your own work and decisions. You are prohibited from referring to or copying the answers of others and from giving answers to anyone else taking the same course. Failure to follow these rules can result in suspension from the course and disciplinary action.

ANSWER SHEETS: You must use answer sheets designed for this course (NETPMSA Form 1430/5, Stock Ordering Number 0502-LP-216-0100). Use the answer sheets provided by Educational Services Officer (ESO), or you may reproduce the one in the back of this course booklet.

SUBMITTING COMPLETED ANSWER SHEETS: As a minimum, you should complete at least one assignment per month. Failure to meet this requirement could result in disenrollment from the course. As you complete each assignment, submit the completed answer sheet to your ESO for grading. You may submit more than one answer sheet at a time.

GRADING: Your ESO will grade each answer sheet and notify you of any incorrect answers. The passing score for each assignment is 3.2. If you receive less than 3.2 on any assignment, your ESO will list the questions you answered incorrectly and give you an answer sheet marked "RESUBMIT." You must redo the assignment and complete the RESUBMIT answer sheet. The maximum score you can receive for a resubmitted assignment is 3.2.

COURSE COMPLETION: After you have submitted all the answer sheets and have earned at least 3.2 on each assignment, your command should

give you credit for this course by making the appropriate entry in your service record,

NAVAL RESERVE RETIREMENT CREDIT: If you are a member of the Naval Reserve, you will receive retirement points if you are authorized to receive them under current directives governing retirement of Naval Reserve personnel. For Naval Reserve retirement, this course is evaluated at 12 points. (Refer to BUPERSINST 1001.39 for more information about retirement points.)

STUDENT QUESTIONS: If you have questions concerning the administration of this course, consult your ESO. If you have questions on course content, you may contact NETPDTC at:

DSN: 922-1795
Commercial: (904) 452-1795
FAX: 922-1819
INTERNET:
NETPDTC.N315@SMTP.CNET.NAVY.MIL

COURSE OBJECTIVES: In completing this nonresident training course, you will demonstrate a knowledge of the subject matter by correctly answering questions on the following subjects: Explosives and Pyrotecnics; Ammunition, Magazines, and Missile Handling; Small Arms; Basic Mechanisms; Electrical and Electronic Circuit Analysis; Gun Mounts; GMLS: Primary Functions and Descriptions and Secondary and Auxiliary Functions; SMS Guided Missiles, Aerodynamics, and Flight Principles; Target Detection and Weapon Control; Alignment; Maintenance; and Administration and Training.

Naval courses may include several types of questions--multiple-choice, true-false, matching, etc. The questions are not grouped by type but by subject matter. They are presented in the same general sequence as the textbook material upon which they are based. This presentation is designed to preserve continuity of thought, permitting step-by-step development of ideas. Not all courses use all of the types of questions available. You can readily identify the type of each question, and the action required, by reviewing o f the samples given below.

MULTIPLE-CHOICE QUESTIONS

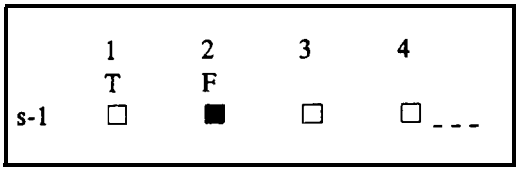
Each question contains several alternative answers, one of which is the best answer to the question. Select the best alternative, and blacken the appropriate box on the answer sheet.

SAMPLE

s-1. The first U.S. Navy nuclear-powered vessel was what type of ship?

1. Carrier
2. Submarine
3. Destroyer
4. Cruiser

Indicate in this way on your answer sheet:



TRUE-FALSE QUESTIONS

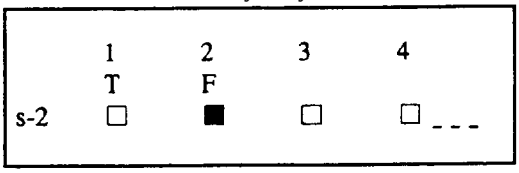
Mark each statement true or false as indicated below, If any part of the statement is false, the entire statement is false. Make your decision, and blacken the appropriate box on the answer sheet.

SAMPLE

s-2. Shock will never be serious enough to cause death.

1. True
2. False

Indicate in this way on your answer sheet:



MATCHING QUESTIONS

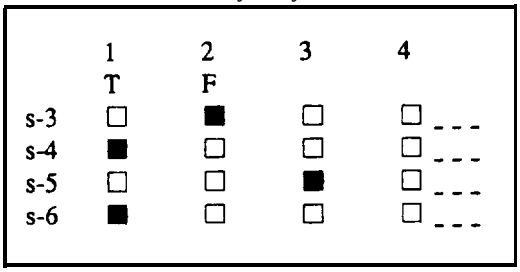
Each set of questions consists of two columns, each listing words, phrases or sentences. Your task is to select the item in column B which is the best match for the item in column A. Items in column B may be used once, more than once, or not at all. Specific instructions are given with each set of questions. Select the numbers identifying the answers and blacken the appropriate boxes on your answer sheet.

SAMPLE

In answering questions s-3 through s-6, SELECT from column B the department where the shipboard officer in column A functions. Responses may be used once, more than once, or not at all.

A. OFFICER	B. DEPARTMENT
s-3. Damage Control Assistant	1. Operations Department
s-4. CIC Officer	2. Engineering Department
s-5. Disbursing Officer	3. Supply Department
s-6. Communications Officer	4. Navigation Department

Indicate in this way on your answer sheet:



ASSIGNMENT 1

Textbook Assignment: "Explosives and Pyrotechnics," chapter 1, pages 1-1 through 1-23.

1-1. What occurrence normally accompanies the rapid release of energy produced by an explosive chemical reaction?

1. A fireball only
2. A fireball and a rapid rise in temperature
3. A rapid rise in pressure and a sonic blast
4. A rapid rise in temperature and pressure

1-2. What factor causes the rapid release of energy experienced during an explosive chemical reaction?

1. The explosive material changing into a gas
2. The increase in temperature caused by the expanding fireball
3. The restraining property of the explosive container
4. The huge vacuum created by the explosion

1-3. An explosive compound that decomposes extremely fast is categorized as what type of material?

1. As a propellant
2. As a low explosive
3. As a high explosive
4. As TNT

1-4. What term describes the instantaneous decomposition of an explosive material?

1. Defamation
2. Deflagration
3. Detonation
4. Disruption

1-5. What feature of a low-explosive decomposition allows it to function as a propellant?

1. The heat produced
2. The gases produced
3. The force of detonation
4. The force of disruption

1-6. What characteristic of an explosive reaction represents its potential for doing work?

1. The heat produced
2. The velocity of the reaction
3. The pressure developed
4. The time of the reaction

1-7. What term defines a measurement of the shattering ability of an explosive?

1. Brisance
2. Deflagration
3. Detonation
4. Explosiveness

1-8. What term defines a measure of the energy necessary to initiate an explosive?

1. Ignition temperature
2. Sensitivity
3. Stability
4. Velocity

1-9. What conditions determine the behavior of an explosive material when it is heated?

1. The manner of confinement and its sensitivity
2. Sensitivity and stability
3. Rate and manner of heating and manner of confinement
4. Sensitivity and rate and manner of heating

1-10. What type of explosive material has its chemical reaction time measured in feet per second?

1. High explosive
2. Low explosive
3. Primer
4. Propellant

1-11. What is the most common method of initiating low explosives?

1. Heat
2. Influence
3. Shock
4. Sympathetic

1-12. What method of initiation explodes a small-explosive charge in contact with a larger, less sensitive explosive to cause its initiation?

1. Heat
2. Influence
3. Shock
4. Sympathetic

1-13. What method of explosive initiation uses a percussion initiator?

1. Heat
2. Influence
3. Shock
4. Sympathetic

1-14. What term describes the chain reaction that leads to the detonation of the main buster charge of a gun projectile?

1. Sympathetic explosion
2. Booster train
3. Explosive train
4. Progressive explosion

1-15. What device is used to increase the shock of initiating explosives to the level necessary to explode the main charge?

1. A focal cone
2. A lead styphnate igniter
3. An extension tube
4. A booster

1-16. What is the function of an intermediate charge?

1. To function between the booster and the main charge
2. TO detonate the booster
3. To amplify the effect of the booster
4. To cause a time delay in the chain reaction

1-17. What type of explosive is used in the igniter of a gun-propelling charge?

1. Black powder
2. Intermediate
3. Nitrocellulose
4. Primer

1-18. What term defines the device used to ignite a gun-propelling charge?

1. Booster
2. Detonator
3. Extension tube
4. Primer

1-19. What term defines the device used to initiate a high-explosive bursting charge?

1. Booster
2. Detonator
3. Extension tube
4. Primer

1-20. Primers are classified in what manner?

1. By the explosives they contain
2. By the time they take to function
3. By the method of initiation
4. By the length of the primer tube

1-21. What is the common ingredient in and triple-based propellants?

1. Lead styphnate
2. Nitrocellulose
3. Nitroglycerine
4. Nitroguanidine

1-22. The propellant grains in a 5"/54 propelling charge are in which of the following forms?

1. Cylindrical with one perforation
2. Cylindrical with seven perforations
3. Ball
4. Flake

1-23. Cylindrical propellant grain sizes are normally stated in which of the following terms?

1. Burning rate
2. Diameter
3. Length
4. Web thickness

1-24. What term defines a propellant grain with a surface area that increases as the grain burns?

1. Ingressive
2. Neutral
3. Progressive
4. Regressive

1-25. What term defines the loading process where high explosives in liquid form are poured into containers to solidify?

1. Cast-loading
2. Extrusion
3. Pour-casting
4. Press-loading

1-26. What term defines explosives that easily absorb moisture?

1. Hydro-absorbent
2. Hydro-sensitive
3. Hydroscopic
4. Water soluble

1-27. What is the oldest explosive known?

1. Black powder
2. Calloided cotton
3. Saltpeter
4. Sulfur

1-28. What condition(s) speed(s) the deterioration of smokeless powder?

1. Heat only
2. Moisture only
3. Heat and moisture
4. Heat and age

1-29. What propellant designation is used to identify an SPDF type propellant mixed with potassium sulfate?

1. M-6
2. M-6+2
3. SPCF
4. SPDB

1-30. What propellant designation identifies a nonhygroscopic, diphenylamine-stabilized smokeless powder?

1. SPDN
2. SPDF
3. SPDX
4. SPWF

1-31. What is the most common type of initiating explosive in use today?

1. DDNP
2. Lead azide
3. Lead styphnate
4. Mercury fulminate

1-32. Which of the following types of primary explosives can be readily ignited by static discharges from the human body?

1. DDNP
2. Lead azide
3. Lead styphnate
4. Mercury fulminate

1-33. Which of the following solvents should NOT be used to remove exudate?

1. Clean, hot water
2. An alkaline preparation
3. Acetone solvents
4. Alcohol

1-34. What is the primary explosive ingredient in compositions A-3, B, and C?

1. HMx
2. PBX
3. RDX
4. TNT

1-35. What initiator activates the igniter battery of a Mk 58 marine location marker?

1. Seawater
2. A pull tape
3. A twist key
4. A transfer fuze

1-36. A Mk 58 marine location marker should burn for approximately what maximum number of minutes?

1. 20 to 30 min
2. 30 to 40 min only
3. 40 to 60 min only
4. 30 to 60 min

1-37. The pull ring of a Mk 6 marine location marker activates what device or solution?

1. Quick match
2. 90-sec delay fuze
3. First candle starting mix
4. The ignition squib

1-38. When conducting man-overboard drills, you should use what marine location marker, if available?

1. Mk 58 Mod 0
2. Mk 58 Mod 1
3. Mk 6
4. Mk 2

1-39. How is the color of a Mk 2 marine illumination signal determined at night?

1. By the color of the paper cartridge
2. By the number of indentations in the base of the cartridge
3. By the texture of the closing wad
4. By the outside texture of the paper cartridge

1-40. The star of a Mk 2 marine illumination signal should burn for approximately what maximum number of seconds?

1. 6 sec
2. 8 sec
3. 10 sec
4. 4 sec

1-41. The Mk 5 pyrotechnic pistol should be fired at what angle?

1. 45°
2. 60°
3. 75°
4. 90°

1-42. Unfired signals should NOT be left in the Mk 5 pyrotechnic pistol for what reason?

1. It is not a good practice
2. The positive safety could malfunction
3. The pistol and the signal are required to be stored away from each other
4. The pistol is always cocked when the breech is closed

1-43. What type of signal is produced by the Mk 1 Mod 1 marine illumination signal?

1. A red parachute-suspended star only
2. A red or green parachute-suspended star
3. A red, green, or yellow 7- to 11-second star
4. A free-falling white comet

1-44. Which of the following signals is NOT designed to be fired from the AN-M8 pyrotechnic pistol?

1. Mk 1 Mod 0 marine illumination signal
2. Mk 1 Mod 1 marine illumination signal
3. Mk 2 marine illumination signal
4. AN-M37A2 aircraft illumination signal

1-45. What color smoke is produced by the Mk 13 marine smoke and illumination signal?

1. Yellow
2. Red
3. Orange
4. Green

1-46. At night, what feature identifies the flame end of a Mk 13 marine smoke and illumination signal?

1. Three beads on the plastic cap
2. A smooth plastic cap
3. A single protrusion on the plastic cap
4. A ridge cast into the signal body

1-47. The flame end of a Mk 13 marine smoke and illumination signal is ignited in what manner?

1. By rubbing a scratching surface across an igniting compound
2. With a twist igniter
3. With a pull ring
4. With a saltwater battery

1-48. What, if anything should be done with a Mk 1 Navy light that gives off a vinegar smell?

1. It should be used as soon as possible
2. It should be turned in as soon as possible
3. It should be disposed of immediately
4. Nothing

1-49. What total number of siqnals is contained in the Mk 79 Mod 2 personnel distress kit?

1. 5
2. 7
3. 9
4. 10

1-50 What color star signal is fired from the Mk 79 Mod 0 personnel distress kit?

1. Green
2. Orange
3. Red
4. White

1-51 If fired, a dented Mk 80 hand-fired signal poses what danger, if any?

1. It may not shoot straight
2. It may hangfire
3. It may react violently
4. None

1-52 Ordnance handlers should be constantly aware of which of the following characteristics of pyrotechnics?

1. Some may be activated by exposure to fresh water
2. All are highly unstable
3. All are very stable and require little care in handling
4. Some are intended to burn with intense heat

1-53. Which of the followinq situations can cause the accidental activation of a pyrotechnic device during handling?

1. Exposure to fresh water
2. Dents or cracks in the outer body
3. Lack of proper grounding
4. Exposure to nonorganic substances

1-54. Moisture can have which of the following effects on pyrotechnic devices?

1. It can make them more sensitive and dangerous
2. It can make them less dependable
3. It can make them more difficult to ignite
4. Each of the above

1-55. Navy Pyrotechnics are designed to withstand which of the folllowing minimum/maximum temperature ranges?

1. -20°F to 100°F only
2. -65°F to 100°F only
3. -65°F to 160°F only
4. -20°F to 165°F

1-56. The smoke and fumes of Navy pyrotechnics are non-toxic and cause only mild irritation to the eyes and nasal passages of personnel when exposed ian any concentration.

1. True
2. False

1-57. When handled properly, Navy ordnance ias relatively safe.

1. True
2. False

1-58. Ordnance safety regulations may be altered or waived, but only by area commanders.

1. True
2. False

1-59. What factor causes the majority of ordnance safety regulations to be written?

1. Safety inspection results
2. Actual disasters
3. The CNO's concern for safety
4. Ordnance specialists brainstorming

1-60. Personnel who routinely handle explosives must guard against what personal characteristic?

1. Familiarity
2. Laziness
3. Forgetfulness
4. Carelessness

ASSIGNMENT 2

Textbook Assignment: "Ammunition, Magazines, and Missile Handling," chapter 2, pages 2-1 through 2-69.

2-1. What term describes the type of ammunition assembly that consists of two pieces rammed together as a single unit?

1. Fixed
2. Separated
3. Separate-loading
4. Bagged

2-2. What ammunition assembly classification includes small-arms ammunition?

1. Fixed
2. Separated
3. Separate-loading
4. Containerized

2-3. What term describes ammunition designed for use in combat?

1. Combat-load
2. Service
3. Target
4. Drill

2-4. What type of ammunition is NOT designed to be fired from a gun?

1. Combat-load
2. Service
3. Target
4. Drill

2-5. Fragmentation projectiles are normally constructed in what manner?

1. With thick walls and a large-explosive cavity
2. With thin walls and a large-explosive cavity
3. With thick walls and a small-explosive cavity
4. With thin walls and a small-explosive cavity

2-6. What term describes the machined surface of a gun projectile that acts to stabilize the projectile as it passes through the gun bore?

1. Ogive
2. Stabilizer bearing
3. Bourrelet
4. Body

2-7. What is the function of a cannelure on a gun projectile?

1. To provide an aerodynamic shape to the projectile
2. To provide a rear bearing surface to stabilize the round in the gun bore
3. To allow for the insertion of a base fuze
4. To collect copper wiped from the rotating band

2-8. What component of a gun projectile acts as a seal preventing the escape of propellant gases?

1. Ogive
2. Stabilizer bearing
3. Rotating band
4. Bourrelet

2-9. What type of projectile is fitted with a base fuze only?

1. AAC
2. HE-CVT
3. HE-MT/PD
4. AP

2-10. What type of projectile is designed to penetrate one third of their caliber of armor?

1. AP
2. COM
3. HC
4. HE-PD

2-11. What type of projectile has a backup point detonating fuze that operates in case of primary fuze failure?

1. AAC
2. HC
3. HE-MT
4. HE-MT/PD

2-12. What device serves to ignite the expelling charge of an illumination projectile?

1. The time fuze
2. The SD fuze
3. The NSD fuze
4. The burn-through of the tracer element

2-13. Which of the following is an advantage of cartridge case type propelling charges?

1. The steel case is reusable
2. They help prevent flarebacks
3. When fired, the case is consumed without leaving an ash
4. The primer can be replaced in case of a misfire

2-14. What is the function of the wad and distance piece in a case type propelling charge?

1. To keep the powder charge tightly packed in the case
2. To make room for the aluminum foil piece
3. To allow room for initial expansion of the propellant gases
4. To keep the plug or projectile from accidently being forced into the case

2-15. What type of propelling charge is often used in firing on reverse-slope targets?

1. Clearing
2. High angle
3. Increased
4. Reduced

2-16. What force of inertia is used to unlock the fuze clock mechanism?

1. Setback
2. Angular acceleration
3. Centrifugal force
4. Creep

2-17. What force of inertia is used to operate the fuze clockwork of most mechanical time fuzes?

1. Setback
2. Angular acceleration
3. Centrifugal force
4. Creep

2-18. What force of inertia is used to align the fuze firing mechanism so that it will function on impact?

1. Setback
2. Angular acceleration
3. Centrifugal force
4. Creep

2-19. Which of the following best describes the term “dead time”?

1. The time of flight of a projectile fuzed with a proximity fuze
2. The time elapsed between the setting of a projectile fuze and the moment the projectile is fired
3. The time elapsed between the time when a projectile is fired and the moment the fuze arms
4. The delay built into the fuze of an armor-piercing projectile that allows it time to penetrate the target before detonating the projectile

2-20. What term describes the fuze safety feature that requires a projectile to be fired and clear of the muzzle before its fuze arms?

1. Dead time
2. Frictional arming
3. Fuze quick
4. Boresafe

2-21 What type of projectile is painted olive drab with a yellow band around the ogive?

1. Countermeasures
2. HE
3. Illumination
4. Smoke

2-22 In the new lot numbering system, what information directly follows the manufacturer’s ID symbol?

1. The year and month of manufacture
2. The lot sequence number
3. The lot suffix and alpha number
4. The lot intermix number

2-23. What year was the new lot numbering system implemented?

1. 1975
2. 1976
3. 1977
4. 1978

2-24. What projectile has light green body color coding?

1. WP
2. HE-PD
3. ILLUM
4. AP

2-25. What level of ammunition inventory accuracy is required by the CNO?

1. 100 percent
2. 99.5 percent
3. 97.5 percent
4. 95 percent

2-26. What responsibility, if any, does a GM3 have-in maintaining an accurate ammunition ledger?

1. To make sure that ammunition items expended are identified and quantities reported
2. To make sure that ammunition items are accurately stenciled
3. To make sure that ammunition items are properly stored
4. None

2-27. How many MSRCs would be required to record 1,000 rounds of .45-caliber ammunition, NALC/DODIC A475, consisting of three lots, if 400 rounds are condition code A and 600 rounds are condition code B?

1. 1
2. 2
3. 3
4. 10

2-28. The maintenance due date of a missile is recorded in what location on an ammunition ledger?

1. On the MSRP
2. On the lot/location card
3. On the serial/location card
4. On maintenance due date record card

2-29. What chapter of SPCCINST 8010.12 provides detailed instructions on the makeup and maintenance of the ammunition ledger?

1. 8
2. 10
3. 12
4. 14

2-30. Which of the following transactions is NOT recorded on a lot/location card?

1. Ammunition ordered
2. All transactions of that lot
3. A change in condition code
4. Ammunition of that lot which was transferred to another command

2-31. Which of the following events does NOT require the submission of an ammunition transaction report?

1. The expending of small-arms ammunition
2. A change of ammunition condition code
3. A receipt of ammunition
4. A change in ammunition storage

2-32. The ATR file is kept in what location?

1. In a file separate from the ledger
2. In the commanding officer’s safe
3. In a file with the ledger
4. With the requisition file

2-33 What document lists the types and quantities of ammunition that are authorized for issue to a particular ship?

1. Initial issue allowance list
2. Ship-fill allowance list
3. Training allowance list
4. The CAIMS manual

2-34 What format is used for ordering ammunition?

1. MILSTRIP in a Navy speed letter
2. MILSTRIP in a naval message
3. ATR in a Navy speed letter
4. ATR in a naval message

2-35 What chapter of the CAIMS manual describes the preparation of an ammunition requisition?

1. 8
2. 10
3. 12
4. 14

2-36. What is the purpose of a gas check seal?

1. To seal the gun bore to prevent the escape of propellant gases
2. To focus the force of propellant gases
3. To prevent propellant gases from penetrating into the explosive cavity of a projectile
4. To hold the base fuzes in place

2-37. What type of projectile is fitted with a gas check seal?

1. Those with a solid base
2. Those with a base plug only
3. Those with a base fuze only
4. Those with either a base plug or base fuze

2-38. What publication contains the complete description of how to inspect projectile gas check seals?

1. NAVSEA OP-4
2. NAVSEA OP-5
3. NAVSEA SW030-AA-MMO-010
4. NAVSEA S9522-AA-HBK-010

2-39. What type of magazine is located in the immediate vicinity of the weapon it serves?

1. Primary
2. Secondary
3. Ready-service magazine
4. Ready-service stowage

2-40. What type of magazine is designed to hold a ship's entire peacetime allowance of ammunition?

1. Primary
2. Secondary
3. Ready-service magazine
4. Ready-service stowage

2-41. What type of magazine provides permanent stowage of ammunition convenient to the weapon that it serves?

1. Primary
2. Secondary
3. Ready-service magazine
4. Ready-service stowage

2-42. Which of the following publications provides specific information concerning shipboard ammunition stowage requirements?

1. NAVSEA OP-4
2. NAVSEA OP-5
3. NAVSEA SW030-AA-MMO-010
4. NAVSEA S9522-AA-HBK-010

2-43. Who is the custodian of all magazine keys aboard ship?

1. The duty GM
2. The weapons officer
3. The executive officer
4. The commanding officer

2-44. What is considered the controlled area on a ship armed with nuclear weapons?

1. The space where the weapons are stored only
2. The space where the weapons are stored and all immediately adjoining spaces only
3. The space where the weapons are stored and all spaces within 50 feet only
4. The entire ship

2-45. What is the primary source of magazine inspection criterion?

1. NAVSEA OP-4
2. NAVSEA OP-5
3. OPNAV Instructions
4. MRCs

2-46. What is the main purpose of the daily magazine inspection?

1. To check material condition
2. To check and record temperatures
3. To check for gear adrift
4. To check smokeless powder samples

2-47. Magazine inspection MRCs contain the same criteria as is used by what inspection team?

1. ESI
2. ESO
3. PSI
4. SMI

2-48. On the daily magazine temperature report, magazines are stated to be in satisfactory condition if they meet what requirements?

1. NAVSEA
2. PQS
3. MRC
4. Safety

2-49. What is the purpose of the exhaust ventilator pipe and check valve in shipboard magazines?

1. To allow air to flow out of the magazine
2. To vent pressure when the space is flooded by the sprinkler system
3. To allow the space to be flooded in case of fire
4. To limit the maximum water level in the space if it is flooded

2-50. What type of magazine sprinkler system is normally used in gun ammunition magazines?

1. Dry type
2. Wet type
3. Solenoid
4. Hydraulic jacking cylinder

2-51. With what minimum firemain pressure are sprinkler control valves designed to operate?

1. 40 psi
2. 50 psi
3. 70 psi
4. 100 psi

2-52. What type of pressure holds a class 2 valve closed?

1. Spring pressure only
2. Firemain pressure only
3. A mechanical linkage
4. Both spring and firemain pressure

2-53. What factor allows firemain operating pressure to overcome firemain pressure acting on the valve disk?

1. The increased pressure produced by the multiplier valve
2. The pressure on the valve disk is removed at actuation
3. The area of the valve disk is larger than that of the lower diaphragm washer
4. The area of the lower diaphragm washer is larger than that of the valve disk

2-54. What sprinkler system valve allows the system to be secured from a station other than the one from which it was activated?

1. Manual control valve
2. Hydraulically operated remote control valve
3. Spring-loaded lift check valve
4. Hydraulically operated check valve

2-55. What sprinkler system valve permits a main sprinkler valve to close rapidly and completely?

1. Power-operated check valve
2. Hydraulically operated remote control valve
3. Spring-loaded lift check valve
4. Hydraulically operated check valve

2-56. What sprinkler valve releases operating pressure from a main sprinkling valve?

1. Power-operated check valve
2. Hydraulically operated remote control valve
3. Spring-loaded lift check valve
4. Hydraulically operated check valve

2-57. What sprinkler system component prevents a buildup of pressure in the control piping because of valve leakage?

1. Hydraulically operated check valve
2. Orifices
3. Pressure vent check valves
4. Drain lines

2-58. Heat-sensing devices are designed to create pressure in response to what condition(s)?

1. Fire only
2. Rapid rise in temperature only
3. Fire and a rapid rise in temperature
4. A slow or rapid rise in temperature

2-59. At what temperature is the fusible link of an HSD designed to part?

1. 155°F (±3°)
2. 160°F (±3°)
3. 165°F (±3°)
4. 175°F (±3°)

2-60. What force or condition activates the PRP valve?

1. A vacuum pressure
2. A differential pressure
3. Heat
4. Barometric pressure

2-61. What is the purpose of the compensating vent on the PRP valve?

1. To equalize the system after it has been activated
2. To compensate for fluctuations in barometric pressure
3. To allow the PRP valve to be adjusted for different temperature ranges
4. To vent slight pressures caused by normal temperature changes

2-62. How much pressure is required to trip the PRP valve?

1. 8 oz
2. 8 lb
3. 5 oz
4. 5 lb

2-63. What magazine alarm indicates water in the dry side of the sprinkler system piping?

1. F
2. FD
3. FH
4. WT

2-64. An MHE operator’s license is valid for what maximum period of time?

1. 1 yr
2. 18 mo
3. 2 yr
4. Indefinite

2-65. What is the standard type of forklift truck used aboard ship?

1. EX
2. EE
3. E
4. DS

2-66. What is the difference between a Mk 85 and a Mk 100 pallet sling?

1. Weight capacity
2. Size
3. The Mk 85 is used for helo transfer only
4. The Mk 85 is used for pallets of powder charges; the Mk 100 is used for pallets of projectiles

2-67. What requirement must be ever present and maintained to validate a Qual/Cert program certification?

1. Record of the commanding officer’s signature
2. Documented training
3. 3-M maintenance records
4. The certification record of the board chairman

2-68. What is/are the Qual/Cert program requirement(s) for ammunition handling working party personnel?

1. Complete certification
2. Partial certification
3. Training, temporary certification, and constant supervision by certified personnel
4. Training, a safety brief, and constant supervision by certified personnel

2-69. Which of the following traits is usually found in people who routinely engage in ordnance handling?

1. A closer observance of safety precautions
2. A neglect for safety precautions
3. A deeper understanding of safety precautions
4. An instinctive safe behavior

2-70. What is the major cause of damage to a missile during handling?

1. Untrained crane operators
2. Carelessness and poor handling practices
3. Unapproved containers or canisters
4. Uncertified handling personnel

2-71. How are missile canisters and containers identified?

1. Serial number
2. Mark and mod number
3. Size
4. Shape

2-72. In what condition are guided missiles delivered to the fleet?

1. In an all-up-round (AUP) status
2. In a disassembled status
3. In a repair status
4. In need of a configuration summary form

2-73. Although all missile inspections are equally important, for what inspection should you be exceptionally thorough?

1. Routine inspection
2. Off-load inspection
3. Receipt inspection
4. Daily inspection

2-74. The results of any guided missile inspection should be logged in what document?

1. Quarter deck log
2. PMS cycle chart
3. Launcher log
4. Guided missile service record (GMSR)

2-75. Who is responsible for the cleanliness and preservation of the missiles aboard ship?

1. BMs
2. GMs
3. GSs
4. SHs

ASSIGNMENT 3

Textbook Assignment: "Small Arms," chapter 3, pages 3-1 through 3-62.

3-1. From what source does the Navy get most of its small arms?

1. The Springfield Armory
2. The Marine Corps
3. The Army
4. The manufacturers

3-2. Small-arms maintenance requirements are found in what publications?

1. TMs
2. Army FMs
3. Marine Corps FMs
4. MRCs

3-3. What is the Navy equivalent of the Army's M1911A1?

1. Model 1911 Alteration 1
2. Mk 1911 Mod 1
3. Mark 1911 Model 1
4. Model 1911 Modification 1

3-4. What is the bore diameter of the 12-gauge shotgun?

1. .410 in
2. .729 in
3. .120 in
4. .12 mm

3-5. What function in the small-arms cycle of operation keeps the bolt closed after firing to prevent loss of gas pressure?

1. Ejection
2. Extraction
3. Feeding
4. Locking

3-6. What two small-arms components work together to remove a spent cartridge case from the chamber and expel it from the weapon?

1. Case remover and ejector
2. Extractor and ejector
3. Case remover and extractor
4. Sear and case extractor

3-7. What type of small-arms weapon requires the trigger to be pulled each time a round is to be fired?

1. Automatic
2. Blowback-operated
3. Gas-operated
4. Semiautomatic

3-8. What type of small-arms weapon uses the force of the burning propellant to operate the bolt and feeder mechanisms?

1. Automatic
2. Blowback-operated
3. Gas-operated
4. Semiautomatic

3-9. In what type of small-arms operation is the weight of the breech bolt an important factor?

1. Automatic
2. Blowback-operated
3. Gas-operated
4. Recoil-operated

3-10. In what type of small-arms operation are the barrel and bolt locked together for a short time as they travel rearward after firing?

1. Automatic
2. Blowback-operated
3. Gas-operated
4. Recoil-operated

3-11. What type of small-arms operation allows a weapon to keep firing as long as the trigger is kept pulled?

1. Automatic
2. Blowback-operated
3. Gas-operated
4. Recoil-operated

3-12. What term defines the greatest distance a weapon can be expected to fire accurately?

1. Maximum accurate range
2. Accurate range
3. Effective distance
4. Maximum effective range

3-13. What term defines the number of rounds per minute that a weapon can fire in full automatic operation?

1. Cyclic rate of fire
2. Sustained rate of fire
3. Maximum rate or fire
4. Timed rate of fire

3-14. The magazine of an M1911A1 pistol can hold a total of how many rounds ?

1. Five
2. Six
3. Seven
4. Nine

3-15. The M1911A1 pistol uses what type of operation?

1. Autoloading
2. Automatic
3. Gas operation
4. Recoil operation

3-16. Which of the following actions should you take before performing any work on a weapon?

1. Dry-fire the weapon
2. Make sure the weapon is clear of ammunition
3. Obtain permission from the work center supervisor
4. Inform the work center supervisor

3-17. What is the first step in field-stripping an M1911A1 pistol?

1. Removing the slide stop
2. Releasing the operating spring tension
3. Removing the firing pin
4. Removing the barrel bushing

3-18. Which of the following is a positive safety on the M1911A1 pistol?

1. Safety lock
2. Grip safety
3. Disconnect safety
4. Half-cocked safety

3-19 In what direction are the pins of an M1911A1 pistol installed during reassembly?

1. Right-to-left only
2. Left-to-right only
3. Either left-to-right or right-to-left
4. Some are installed left-to-right and some are installed right-to-left

3-20. On an M1911A1 pistol, when does the disconnector function to prevent firing?

1. When the hammer is not fully cocked
2. When the safety lock is engaged
3. When the slide is fully forward
4. When the slide is not fully forward

3-21. How does the grip safety prevent firing of the M1911A1 pistol?

1. By locking the sear in place
2. By locking the hammer in place
3. By directly preventing movement of the sear
4. By preventing movement of the trigger

3-22. During firing, what action unlocks the barrel of an M1911A1 pistol from its slide?

1. The downward pivot of the barrel during recoil
2. The spring action of the extractor
3. The spring action of the operating spring
4. The caroming action of the barrel link as it passes over the disconnector

3-23. What Navy personnel are often issued the .38-caliber pistol?

1. Flight personnel only
2. Flight and security personnel ashore
3. Surface ship security personnel only
4. Security personnel ashore and aboard submarines

3-24. What action does the term “double-action firing” define when applied to the .38-caliber pistol?

1. That the hammer must be pulled back to the full-cocked position for each round fired
2. That the cylinder is automatically rotated when the hammer is cocked
3. That the hammer is automatically recocked after each firing using recoil forces
4. That the cylinder is rotated and the hammer raised and released for firing, all by pulling the trigger

3-25. What safety feature on the .38-caliber pistol prevents accidental firing of the uncocked pistol if it is dropped?

1. The hammer block
2. The disconnector
3. The rebound slide
4. The firing interrupt

3-26. When disassembling the .38-caliber pistol for cleaning, what must you do to remove the cylinder? (Refer to figure 3-18, view B.)

1. Remove sideplate screw No.1 only
2. Hold the thumb piece forward while cocking the weapon only
3. Remove sideplate screws No. 1 and 2, then hold the thumb piece forward while cocking the weapon
4. Unscrew the ejector plunger

3-27. The safety is in what location on the M-14 rifle?

1. On the left rear side of the receiver
2. Forward of the trigger guard
3. On the right rear side of the receiver
4. In the center of the rear hand grip

3-28. What condition probably exists if the safety on an M-14 rifle will not engage?

1. There is no magazine in the weapon
2. The bolt is not fully forward
3. The weapon is not cocked
4. The weapon is not loaded

3-29. What device activates the bolt lock of an M-14 rifle to hold the bolt open after the last round is fired?

1. The connector
2. The disconnector
3. The magazine latch
4. The magazine follower

3-30. The M-14 rifle uses what type of operation?

1. Blowback
2. Gas
3. Radial
4. Recoil

3-31. When is an M-14 rifle considered clear?

1. After the last round is fired, the bolt is open, and the safety is set
2. When the safety is set, the bolt is open, and there is no round in the chamber only
3. When the magazine is out, the bokt is open, and there is no round in the chamber only
4. When the bolt is open, the magazine is out, the safety is set, and there is no round in the chamber

3-32. What action should you take to remove the firing mechanism of an M-14 rifle?

1. Rotate the trigger guard away from the stock while depressing the trigger
2. Rotate the trigger guard 90 degrees away from the stock
3. Depress the retaining latch using the maintenance tool provided
4. Depress the retaining latch using the pointed end of a cartridge

3-33. Field-stripping an M-14 rifle does NOT include which of the following?

1. Removing the extractor from the bolt
2. Removing the bolt from the weapon
3. Removing the stock from the receiver
4. Removing the operating rod and connector

3-34. The A1 upgrade to the M-16 rifle provides what change?

1. Increased the bolt tolerances
2. Added the charging handle
3. Made the weapon capable of full automatic fire
4. Added the forward assist mechanism

3-35. What must be done to remove the upper receiver from the lower receiver of the M16 rifle?

1. Unscrew the takedown and pivot pins
2. Detach the left and right retaining latches
3. Depress the retaining latches with the cleaning rod
4. Press the takedown and pivot pins

3-36. Why is it preferable to load an M-16A1 rifle with the bolt open?

1. It reduces the likelihood of first round stoppages
2. It is safer
3. It reduces the possibility of accidentally firing the weapon
4. It allows the operator to inspect the chamber before loading

3-37. What must be done to chamber a round in an M-16A1 rifle if the magazine is inserted with the bolt closed?

1. The charging handle must be depressed
2. The charging handle must be pulled fully to the rear and then eased back into the forward position
3. The charging handle must be pulled fully to the rear and released
4. The charging handle must be pulled to the rear and locked in position until the first round is fired

3-38. The operator of an M-16A1 rifle should strike the forward assist under what conditions?

1. After inserting a magazine
2. After cambering the first round
3. After the bolt fails to go fully forward
4. When the magazine is stuck

3-39. When fully loaded, the tubular magazine of the M870 shotgun holds what maximum number of rounds of ammunition?

1. Five
2. six
3. Three
4. Four

3-40. The safety is in what location on the M870 shotgun?

1. In the center of the rear hand grip
2. On top of the receiver
3. In the front of the trigger guard
4. To the rear of the trigger guard

3-41. To be in the SAFE position, you must push the safety of the M870 shotgun in what direction?

1. Left to right
2. Right to left
3. Front to back
4. Back to front

3-42. To pump the fore-end to the rear when the M870 shotgun is cocked, you must take what action?

1. Release the safety
2. Set the safety
3. Press the action bar lock
4. Release the action bar lock

3-43. What is the function of the action bar lock on the M870 shotgun?

1. It disconnects the trigger and sear assembly while the bolt is open and aligns each round of ammunition for proper seating
2. It aligns each round of ammunition for proper seating and locks the action closed
3. It locks the action closed and disconnects the trigger and sear assembly while the bolt is open
4. It aligns each round of ammunition for proper seating and prevents double feeding

3-44. At what point in the movement of the fore-end of an M870 shotgun is a round of ammunition released from the tubular magazine and fed into the chamber?

1. At the beginning of forward movement
2. At the end of rearward movement
3. When the action bar lock is released after firing
4. As the spent shell casing is ejected

3-45. What action must be taken to remove the barrel of the M870 shotgun?

1. Unscrew the barrel retaining nut
2. Drive out the barrel retaining pins
3. Rotate the barrel lock 90 degrees
4. Remove the magazine cap

3-46. What action must be taken to remove the breech bolt from the M870 shotgun?

1. Drive out the breech bolt retaining pin
2. Remove the fore-end unit from the receiver
3. Remove the bolt retainer and then pull the bolt through the ejection port
4. Remove the trigger plate assembly and pull the bolt through the bottom of the receiver

3-47. The safety switch is in what location on the M500 shotgun?

1. On top of the receiver
2. To the rear of the trigger guard
3. To the front of the trigger guard
4. On the bottom of the receiver

3-48. The Mk 87 Mod 1 line-throwing kit launcher is installed on an M-14 rifle in what manner?

1. The flash suppressor is removed from the rifle and the launcher is screwed onto the barrel in its place
2. The launcher is clamped to the gas cylinder of the rifle
3. The launcher is clamped around the flash suppressor
4. The launcher is slid over the flash suppressor and latched to the bayonet lug

3-49. What factor determines the active life of a chemical light wand?

1. Its age
2. Its chemical composition
3. The ambient temperature
4. Barometric pressure

3-50. What is the approximate total length of a roll of shot line?

1. 330 ft
2. 500 ft
3. 550 ft
4. 600 ft

3-51. What is the maximum reliable range of a line-throwing projectile fired from an M-14 rifle?

1. 80 yd
2. 90 yd
3. 95 yd
4. 100 yd

3-52 What is the maximum effective range of the M2 BMG?

1. 2,000 yd
2. 4,000 yd
3. 5,000 yd
4. 7,400 yd

3-53 The M2 BMG uses what type of operation?

1. Blowback-operated
2. Gas-operated
3. Recoil-operated
4. Spring and cam operated

3-54 Which of the following terms defines the distance between the face of the bolt and the base of a cartridge case fully seated in the chamber of an M2 BMG?

1. Bolt gap
2. Feed space
3. Head space
4. Timing space

3-55. When firing the M2 BMG, what factor determines automatic or semi-automatic mode of operation?

1. The position of the firing selector switch
2. The position of the safety switch
3. The position of the bolt latch release lock
4. The set of triggers the operator uses

3-56. After the operator of the M2 BMG releases the trigger, what emergency action must be taken if firing continues?

1. Keep the weapon on target and allow it to expend all ammunition
2. Open the feeder cover and remove the ammunition belt
3. Break off the ammunition belt
4. Twist the ammunition belt

3-57. Excessive oiling of the M2 BMG should be avoided for what reason?

1. It is wasteful and unnecessary
2. When fired, the oil may splatter on the operator, possibly getting in his eyes
3. It is a fire hazard during sustained firing
4. It can solidify causing sluggish operation

3-58. What is the maximum effective range of the M-60 machine gun?

1. 1,100 yd
2. 1,200 yd
3. 1,000 m
4. 1,200 m

3-59. When firing at a target 500 yards away, what total number of clicks of the windage knob on an M-60 machine gun will correct for a 5-yard discrepancy?

1. 5
2. 8
3. 10
4. 20

3-60. The M-60 machine gun uses what type of operation?

1. Blowback
2. Gas
3. Recoil
4. Semiautomatic

3-61. What action causes the firing pin to strike the primer of a chambered round in the M-60 machine gun?

1. The hammer striking the rear of the firing pin
2. A machined knob on the face of the bolt striking the primer as the bolt closes
3. The firing pin being carried forward into the primer by the operating rod yoke
4. The hammer striking the rear of the bolt transmits force to the firing pin and into the primer

3-62. What action causes the bolt of the M-60 machine gun to lock into the barrel?

1. The cammed barrel causes the bolt to turn 90 degrees counterclockwise locking its three lugs into machined slots in the barrel
2. The operating rod yoke rides against the bolt camming slot to turn the bolt 90 degrees clockwise
3. Spring pressure
4. Two locking levers are cammed out and over the two bolt lugs as it closes the breech

3-63. What is the state of the M-60 machine gun when the trigger is released after firing?

1. The bolt is locked to the rear and a round is aligned in the feed tray
2. The bolt is forward with a round in the chamber
3. The bolt is locked to the rear with a fresh round held on the bolt face by the extractor
4. The bolt is locked in the half-cocked position with a round in the feeder guide

3-64. Which of the following is NOT a component in the operating group of the M-60 machine gun?

1. Bolt
2. Drive spring
3. Sear
4. Spring guide

3-65. The sear notch is in what location on an M-60 machine gun?

1. On the bottom rear of the bolt
2. On the bottom of the operating rod
3. On the rear of the hammer
4. On the side of the hammer

3-66. When disassembling an M-60 machine gun, what component must you remove before removing the operating group?

1. The barrel
2. The forehand grip
3. The trigger group
4. The buffer group

3-67. What is the maximum range of the Mk 16 Mod 5 machine gun?

1. 5,000 yd
2. 6,000 yd
3. 7,000 yd
4. 8,000 yd

3-68. How is the M79 grenade launcher cocked?

1. By manually cocking the hammer using your thumb
2. The weapon cocks itself as the bolt is retracted
3. The weapon cocks itself as it is opened
4. By retracting the charging lever

3-69. What action is accomplished when the barrel locking latch of the M79 grenade launcher is moved all the way to the right?

1. The safety is set
2. The barrel is locked in preparation for firing
3. The safety is disengaged
4. The direct fire sight is visible for use

3-70. What is the battle sight range of the M79 grenade launcher?

1. 50 - 80 ft only
2. 50 - 80 yd
3. 165 - 265 ft only
4. 165 - 265 m

3-71. What action must be taken to remove the barrel from the stock of an M79 grenade launcher?

1. Remove the retaining latches
2. Remove the securing pin
3. Remove the stock
4. Remove the fore-end

3-72. Which of the following is NOT a characteristic of the Mk 19 Mod 3 machine gun?

1. Blowback-operated and air-cooled
2. Fire linked ammunition of the same size as the M79
3. Fully automatic
4. Bolt is held in the rear position with a round in the bolt fingers at cease fire

3-73. When loading the Mk 19 Mod 3 machine gun, what action must the operator take before closing the top cover?

1. Move the ejector assembly forward
2. Set the safety lever to the left
3. Move the slide assembly to the left
4. Align the ejector and slide assemblies

3-74. When fully loading the Mk 19 Mod 3 machine gun, the second pull of the charger handles accomplishes what action?

1. Delinks a round and chambers it for firing
2. Positions a round in the bolt fingers
3. Positions a round on the bolt face
4. Delinks a round and releases the bolt sear

3-75. What action causes the spent case to be ejected from the Mk 19 Mod 3 machine gun?

1. The camming action of the ejector mechanism
2. A fresh cartridge moving down the bolt face
3. The forward motion of the bolt as it chambers a fresh cartridge
4. The action of the feeder drive mechanism

ASSIGNMENT 4

Textbook Assignment: "Basic Mechanism," chapter 4, pages 4-1 through 4-59.

4-1. What is the function of a cam follower?

1. To rotate the cam in response to an electrical signal
2. To position other devices in response to cam contours
3. To cancel oscillations in cam movement
4. To prevent backlash in cam movement

4-2. Gear trains are NOT used for which of the following purposes?

1. To change direction of motion
2. To increase speed
3. To provide a positive drive
4. To provide a flexible coupling

4-3. What is the function of an idler gear?

1. To cancel the direction reversal effect of one gear turning another
2. To take slippage out of the system
3. To span a distance between the drive and driven gear in limited space applications
4. To reverse the direction of motion allowing the output shaft to turn in the opposite direction as the input shaft

4-4. What type of gears are most often used to change the angular direction of motion in a gear train?

1. Rack and pinion
2. Moon
3. Helical
4. Bevel

4-5. What unique property makes a worm gear useful in ammunition hoists and train and elevation power drives?

1. They are very strong and function well in high torque applications
2. They are versatile because motion can be transmitted through the gears in both directions
3. They can act as an emergency brake because they transmit motion in only one direction
4. They are very resistant to slippage because the worm and the drive gear are at 90-degree angles to each other

4-6. What effect, if any, does a reduction in speed throuqh the use of a gear train have on the amount of drive force applied?

1. The effect of the input force can either be reduced or increased, depending on the degree of speed reduction
2. The effect of the input force is reduced proportionally with the output speed
3. The effect of the input force is magnified as speed is reduced
4. None

4-7. What is another name for the pivot point in a mechanical linkage?

1. Angle
2. Bevel
3. Fulcrum
4. Lever

4-8. Which of the following is a reason for putting a fixed sliding lug coupling in the drive shaft between a motor and the pump it operates?

1. To allow for major misalignment of the shafts
2. To allow the pump and motor to be removed or replaced independently of each other
3. To allow for fine adjustment of the output
4. To allow for seal replacement

4-9. What is the function of bearings and lubrication in ordnance equipment?

1. To reduce friction between moving parts
2. To support and preserve exposed linkages
3. To increase the effort required to turn gears and shafts
4. To preserve and align rotating equipment

4-10. What characteristic(s) of fluids allow(s) force to be transmitted through them in a closed container?

1. The density of their molecules only
2. They take the shape of their container and they are not compressible
3. Their high weight-to-area ratio and the density of their molecules
4. They are compressible

4-11. Which of the following is NOT a true statement concerning fluids?

1. They are not compressible
2. They transmit applied force equally in all directions when contained
3. They transmit applied force in one general direction when contained, directly away from the applied force
4. The size of connecting pipes used to transmit hydraulic force affects the operating speed by limiting fluid volume

4-12. If a force of 15 pounds is applied to a hydraulic piston with a surface area of 3 square inches, what force will be felt on the output piston with a surface area of 10 square inches?

1. 30 lb
2. 45 lb
3. 50 lb
4. 150 lb

4-13. What is the function of baffles in a hydraulic reservoir?

1. To separate air from the fluid
2. To keep the fluid from sloshing around as the ship moves
3. To strain large objects from the fluid
4. To keep the oil from forming a layer of film on top when the system is not running

4-14. Which of the following devices function to remove large particles of contamination from hydraulic fluid?

1. Baffles
2. Filters
3. Orifices
4. Strainers

4-15. The filter is in what section of a hydraulic system?

1. On the end of the pipe that supplies fluid to the pump
2. After the pressure control device
3. At the end of the fluid return line just before the reservoir
4. Between the pump and the pressure control device

4-16. What is the function of a bypass valve in a full-flow hydraulic filtration system?

1. To divert a portion of hydraulic fluid for filtering during normal operation
2. To secure the system if the filters become clogged
3. To divert pump pressure back to the reservoir if the filters become clogged
4. To pass fluid to the pressure control device if the filters become clogged

4-17. How does the control valve of a hydraulic pressure regulating device control the functioning of the unloading valve?

1. By controlling the hydraulic pressure applied to the large area side of the unloading valve
2. By controlling the hydraulic pressure applied to the small area side of the unloading valve
3. By controlling the hydraulic pressure applied to the lower control valve piston
4. By controlling the hydraulic pressure ported to the top of the control valve

4-18. What is the primary function of an accumulator?

1. To provide fluid to the system during low demand operations only
2. To store extra fluid in addition to the reservoir
3. To store fluid under pressure
4. To provide fluid to the system during high demand operations only

4-19. When a hydraulic system is not energized, what device keeps the accumulator bladder from being forced into the system by nitrogen pressure?

1. The bladder retainer
2. The poppet valve
3. The outlet line shield
4. A baffle

4-20. What is the function of a hydraulic pump?

1. To produce hydraulic pressure
2. To supply a flow of fluid to the system
3. To pressurize the system
4. To reduce system resistance to fluid flow

4-21. What type of system usually uses an axial piston pump?

1. One that requires a constant output only
2. One that requires a constant or low volume output
3. One that requires a variable output only
4. One that requires a variable or high volume output

4-22. What is the function of the stroking pistons in an axial piston pump?

1. To move the B-end tilt plate
2. To pump fluid from the A-end to the B-end
3. To move the A-end tilt plate
4. To operate the pressure regulator

4-23. What determines the direction of output flow of an axial piston pump ?

1. The direction of A-end tilt
2. The degree of tilt of the A-end
3. The direction of the aperture opening in the regulator valve
4. The direction of B-end tilt

4-24. What is the primary use of HP air in a gun system?

1. To operate the air-drive motors
2. To operate the gun house air ventilator
3. To operate the gas ejection system
4. To recharge the gun recoil system after maintenance

4-25. What are the two normal operating pressures of an HP air system?

1. 1,000 psi and 3,000 psi
2. 2,000 psi and 3,000 psi
3. 3,000 psi and 5,000 psi
4. 1,000 psi and 5,000 psi

4-26. Why do gas ejection systems use HP air even though they operate at a relatively low pressure?

1. Because they are critical systems
2. Because they are high-flow systems
3. Because they can be isolated from the air supply to operate from a flask
4. Because they require the exact regulation supplied by a reducer

4-27. Cold recoil jacks are not a part of the MK 75 hydraulic system.

1. True
2. False

4-28. What device allows you to quick-check the quantity of hydraulic fluid in the Mk 75 hydraulic system?

1. A dip stick
2. A pressure gauge
3. An oil level indicator
4. A bleed plug

4-29. What gas keeps a constant pre-established head of pressure in the accumulator on the Mk 75?

1. Air
2. Argon
3. Nitrogen
4. Oxygen

4-30. The bypass valve assembly serves what purpose on the Mk 75?

1. It provides tank access
2. It provides a fill and drain port
3. It reduces the starting load on the electric motor and pump
4. It increases the starting load on the electric motor and pump

4-31. What are the principal parts of the lower gun loading system on the Mk 75?

1. Rocking arm assemblies
2. Loader drum assembly
3. Revolving magazine and screw feeder
4. Transfer tray and slide assembly

4-32. The revolving magazine on the Mk 75 holds what maximum number of rounds?

1. 100
2. 90
3. 85
4. 70

4-33. The screw feeder on the Mk 75 operates independently of the revolving magazine.

1. True
2. False

4-34. What type of force operates the rocking arm assemblies on the Mk 75?

1. Electrical
2. Hydraulic
3. Manual
4. Pneumatic

4-35. The loader drum on the Mk 75 has what total number of stations?

1. Seven
2. six
3. Five
4. Four

4-36. The breech mechanism is part of what assembly on the Mk 75?

1. Loader drum
2. Revolving magazine
3. Screw feeder
4. Slide

4-37. What is the primary purpose of the cold recoil jacks on the Mk 75?

1. They move the gun in and out of battery during maintenance work
2. They elevate the gun barrel
3. They manually train the mount
4. They manually rotate the loader drum

4-38. The Mk 75 ammunition handling system holds what maximum number of rounds?

1. 95
2. 90
3. 85
4. 80

4-39. The hydraulic power unit is mounted in what location on the Mk 75?

1. On the slide
2. On the carriage
3. On the loader drum
4. Outside the magazine

4-40. The screw feeder on the Mk 75 holds what maximum number of rounds?

1. Eight
2. Six
3. Five
4. Four

4-41. The loader drum on the Mk 75 holds what maximum number of rounds?

1. Eight
2. Six
3. Five
4. Four

4-42. The Mk 45 hydraulic system is divided into what total number of components ?

1. Five
2. Two
3. Three
4. Four

4-43. The stationary gun loading components on the Mk 45 are in what location?

1. In the loader room only
2. In the magazine only
3. In the loader room and magazine
4. In the upper gun

4-44. Which of the following is NOT a stationary component of the Mk 45 hydraulic system?

1. Loader drum
2. Fuze setter
3. Breech mechanism
4. Lower accumulator

4-45. Which of the following is NOT a rotating component of the Mk 45 hydraulic system?

1. Lower hoist
2. Cradle
3. Rammer
4. Recoil-counterrecoil system

4-46. The Mk 45 lower accumulator system does NOT supply hydraulic power to which of the following components?

1. Cradle
2. Loader drum
3. Lower hoist
4. Fuze setter

4-47. On the Mk 45, what component receives hydraulic power from the upper and lower accumulator?

1. Rammer
2. Cradle
3. Breech mechanism
4. Upper hoist

4-48. On the Mk 45, the upper accumulator is mounted in what location?

1. In the magazine
2. On the carriage
3. In the passageway
4. In the loader room

4-49. Which of the following is NOT a major component of the Mk 45 upper accumulator system?

1. Main supply tank
2. Main motor and pump
3. Fuze setter
4. Emergency power drive

4-50. What is the main function of the Mk 45 rammer?

1. Rams ammo into the breech
2. Supports the cradle
3. Operates the breech mechanism
4. Controls the recoil pistons

4-51. Which of the following is NOT a function of the breech mechanism on the mk 45?

1. Opens and closes the breech
2. Extracts spent powder cases from the breech
3. Ejects gas from the gun barrel
4. Return the gun to battery after firing

4-52. On the Mk 45, what substance drives the counterrecoil pistons forward to put the gun barrel housing in battery after firing?

1. Air pressure
2. Pressurized nitrogen
3. Hydraulic fluid
4. Pressurized argon

4-53. When the Mk 45 fires, what movement triggers the hydraulic actions that raise the breechblock?

1. Counterrecoil
2. Cradle
3. Rammer
4. Recoil

4-54. The Mk 45 servo and supercharge hydraulic system provides pressurized fluid to control and replenish what components?

1. Power drives
2. Hoists
3. Air systems
4. Cradle and rammer

4-55. The Mk 45 auxiliary relief valve block regulates the servo pressure at what psi setting?

1. 450
2. 550
3. 650
4. 750

4-56. The Mk 13 Mods 4 and 7 GMLSS have what total number of power drives?

1. Five
2. Two
3. Three
4. Four

4-57. The Mk 13 launcher guide power unit supplies PA to which of the following components?

1. Magazine RSR/hoist
2. Guide components and the blast door
3. Train
4. Elevation

4-58. The Mk 13 Mods 4 and 7 magazine RSR/hoist power drive does NOT supply hydraulic power to which of the following components?

1. The chain hoist shifter
2. The blast door
3. RSR latches
4. The RSR positioner

4-59. What is the purpose of the Mk 26 GMLS train power drive?

1. To elevate the guide arms
2. To depress the guide arms
3. To rotate the launcher in train
4. To operate the blast doors

4-60. What is/are the primary function(s) of the Mk 26 GMLS elevation power drive system?

1. Elevates and depresses the guide arms
2. Rotates the launcher in train
3. Operates the blast doors
4. Operates the RSR

ASSIGNMENT 5

Textbook Assignment: "Electrical and Electronic Circuit Analysis," chapter 5, pages 5-1 through 5-90.

5-1. What is the function of the gun mount/GMLS control circuits?

1. To control the sequence of operation
2. To control the application of power drives only
3. To act as a safety interlock for safe operation only
4. To provide a means of controlling the operation of the gun-loading and launcher-handling systems only

5-2. What is the normal source of gun mount/launcher control circuit voltage?

1. The ship's 115-volt power supply
2. The ship's 400-cycle generators
3. A transformer in the fire control switchboard
4. A gun mount/launcher transformer

5-3. What is the latest schematic designation for an indicator light?

1. L
2. LI
3. DS
4. DL

5-4. How are electrical fuses rated?

1. In ohms, by the resistance they provide the system
2. In amperes, by the current they can carry safely
3. In volts, by the voltage they can carry safely
4. In microfarads, by the impedance they can produce safely

5-5. What is the latest standard schematic designation for a fuse?

1. F
2. FA
3. FE
4. FZ

5-6. Why do electrical switches normally operate with a snap action?

1. To increase response time
2. To minimize arcing
3. To streamline operation
4. To ensure a good low-resistance connection

5-7. The number of switch contacts operated by a single rotary switch should be changed by using what method?

1. By replacing the switch with a larger or smaller version
2. By adding or subtracting switch layers
3. By wiring the contacts in series
4. By adding a canned relay

5-8. What device ensures the proper alignment of switch contacts in a JR switch?

1. A stenciled plate with alignment marks
2. A spring lock inside each contact
3. A detente wheel
4. A spring-loaded lockpin attached to the center shaft

5-9. The movement of a JR switch is limited by what action?

1. By inserting pins in the top deck
2. By stops attached to the face of the unit where the switch is installed
3. By stops installed at the factory
4. By the operator; no positive stops are possible

5-10. What device is used to actuate a proximity switch?

1. An infrared light beam
2. A magnet attached to a stationary component
3. A magnet attached to a moving component
4. A UV light beam

5-11. What determines the delay interval of a time-delay relay?

1. The size of the in-line resistor
2. The number of core laminations
3. The thickness of the copper sleeve around the core
4. The size of the adjustable orifice

5-12. What total number of sets of contacts are contained in a miniature canned relay?

1. Six
2. Two
3. Three
4. Four

5-13. What designation describes the normally closed contacts of a miniature canned relay?

1. NC
2. HF
3. HB
4. CC

5-14. What is the function of the D contact of a motor contactor?

1. To supply power to the drive motor
2. To indicate when the contactor is closed
3. To energize the contactor inertia lock
4. To provide a ground for the contactor body

5-15. What factor determines the delay time for the actuation of an overload relay?

1. The size of the adjustable air orifice
2. The magnitude of the overload
3. The viscosity of the oil in the dashpot
4. The size of the in-line delay resistor

5-16. What is the function of the dashpot in an overload relay?

1. To cushion the contact plunger as it reaches the end of its travel
2. To delay operation of the relay
3. To delay closing of the relay after the system has been reset
4. To transfer heat away from the overheated contacts

5-17. Circuit breakers perform what function?

1. Overload protection only
2. Automatic power source transfer only
3. Overload protection and switching only
4. Overload protection, automatic power source transfer, and switching

5-18. What is the function of the pilot valve in the new type of solenoid housing used on the Mk 45 gun system?

1. To act as a detente
2. To control the flow of hydraulic fluid to system operating pistons
3. To direct hydraulic fluid flow to the desired solenoid actuating piston where it is directed to a valve block
4. To act as a flow control check valve that allows fluid flow in only one direction

5-19. Solenoids convert electrical inputs into what kind of output?

1. Electrical
2. Hydraulic
3. Manual
4. Mechanical

5-20. What is the primary function of solenoids in weapon systems?

1. To act as the primary link between the electrical control system and the hydraulic system
2. To shift the solenoid back to neutral after it is de-energized
3. To provide equipment position feedback to the control system
4. To energize LC3

5-21. Which of the following capabilities is NOT an advantage of the new type of solenoid housing used on the Mk 45 gun system?

1. It can be removed and replaced by removing four bolts
2. It requires fewer hydraulic seals
3. It is easier to adjust
4. It incorporates the hydraulic control valve

5-22. How should You determine the meaning of a nonstandard electrical symbol used in a gun system schematic drawing?

1. Contact the manufacturer
2. Refer to the system OP
3. Refer to ANSI Y32.2-1975
4. Contact NAVSEA

5-23. Which of the following designations identifies an interlock switch in the empty case ejector circuit of a Mk 45 gun mount?

1. SWS 1
2. SIS1
3. SIM1
4. QAS1

5-24. What train system component is identified by the Mk 45 gun mount designation KTT1?

1. A control relay
2. A time delay relay
3. A circuit breaker
4. A contactor

5-25. How are transistors used in the control circuits of modern gun mounts?

1. As control relays
2. As interlock relays
3. As electronic switches
4. As current amplifiers

5-26. What is the difference between the schematic symbols of a PNP and an NPN transistor?

1. The arrow on the emitter of the PNP points away from the base, while the NPN arrow points toward the base
2. The arrow on the collector of the PNP points toward the base, while the NPN arrow points away from the base
3. The arrow on the collector of the PNP points away from the base, while the NPN arrow points toward the base
4. The arrow on the emitter of the PNP points toward the base, while the NPN arrow points away from the base

5-27. What condition causes an NPN transistor to conduct?

1. When the electrical potential on the base is HIGH in relation to the potential on the emitter
2. When the electrical potential on the base is LOW in relation to the potential on the emitter
3. When the electrical potential on the base is HIGH in relation to the potential on the collector
4. When the electrical potential on the base is LOW in relation to the potential on the collector

5-28. What is the first step in troubleshooting electronic control circuit problems?

1. Determine if the problem is in the 115-volt or 24-volt circuits
2. Verify the operation of the output transistor
3. Check the output of the output transistor
4. Determine where in the operational sequence the equipment stopped

5-29. What action should you take before removing a circuit board from an electrical panel?

1. Attach a grounding strap to the circuit card
2. Attach a grounding strap to your wrist
3. Secure the power
4. Get permission from the weapons officer

5-30. Which of the following circuits or situations defines how logic circuits function?

1. A blown fuse in a 115-volt power supply circuit
2. A transistorized circuit
3. A solenoid circuit
4. A meter reading of infinite ohms

5-31. What inputs are required (using LOW logic) for the output of an AND gate to be HIGH?

1. All the inputs to be LOW
2. All the inputs to be HIGH
3. Any one of the inputs to be HIGH
4. Any one of the inputs to be LOW

5-32. What inputs are required (using LOW logic) for the output of an OR gate to be LOW?

1. All the inputs to be LOW
2. All the inputs to be HIGH
3. Any one of the inputs to be HIGH
4. Any one of the inputs to be LOW

5-33. What is the function of the microprocessor in a 5"/54 Mk 45 Mod 1 gun mount?

1. To monitor the operational sequence of the gun
2. To turn gun orders into train and elevation orders
3. To amplify gun orders only
4. To amplify gun and fuze setter orders

5-34. What is the function of a circuit card extender?

1. It adapts the circuit card to the system test slot
2. It allows readings to be taken on a card while the system is energized
3. It provides test points for some of the pin connections on the card
4. It performs a diagnostic test of the cards function

5-35. What is the function of a synchro

1. To compute and generate gun orders
2. To transmit data
3. To interpret data
4. To modulate data

5-36. What is a primary applications of synchros in a gun or GMLs system?

1. Loading system control
2. Control voltage generation
3. Power drive control
4. Control system diagnosis

5-37. Which of the following qualities makes synchros useful for controlling naval weapons?

1. Accuracy only
2. Power only
3. Accuracy and power
4. Accuracy and speed

5-38. What are the three classes of synchros

1. Differential, receiver, and transmitter
2. Transmitter, receiver, and control transformer
3. Torque transmitter, differential, and control transformer
4. Torque transmitter, control transmitter, and receiver

5-39. What is/are the function(s) of a synchro differential?

1. To add two signals and transmit the results only
2. To add or subtract two inputs and to transmit the results to another synchro to supply a mechanical output
3. To position a mechanical device such as a dial only
4. To add or subtract two inputs and position a dial with the results

5-40. What device(s) is/are used in a servo system that requires electrical outputs?

1. TX and CX
2. TX only
3. CT
4. CX and TR

5-41. Which of the following terms defines the electrical reference point of a synchro

1. Rotor position
2. Electrical zero
3. Rotor zero
4. Electrical reference

5-42. What is the basic principle of synchro system operation?

1. The stator of the receiver matches the rotor position of the transmitter
2. The rotor of the transmitter matches the rotor position of the receiver
3. The rotor of the receiver matches the rotor position of the transmitter
4. The stator of the receiver matches the stator position of the transmitter

5-43. It is not necessary for the electrical and mechanical reference points of a gun system to be aligned.

1. True
2. False

5-44. What action must be taken before you replace a synchro using the electrical zero method?

1. Position all equipment to mechanical zero using a tram bar, slip all indicator dials to read perfect zero, then replace the synchro
2. Position all equipment and indicators at zero, set all synchros at electrical zero, then replace the synchro
3. Set all dials at zero without regard to equipment position, electrically zero all synchros then replace the synchro
4. Disconnect and electrically zero all system synchros then remove and replace the synchro and reconnect all synchros

5-45. Which of the following problems is an indication of a malfunctioning synchro transmitter?

1. One receiver fails to read correctly only
2. All receivers fails to read correctly
3. The receiver rotor locks at 180 degrees
4. The receiver rotor locks at 120 degrees

5-46. Which of the following factors is NOT a cause of open circuits?

1. Vibration
2. Faulty installation
3. Clean or tight connections
4. Dirty or loose connections

5-47. Which of the following terms describes a low-resistance path for current flow that bypasses the intended load of a circuit?

1. An open
2. A short
3. A ground
4. A hot ground

5-48. What is the purpose of the gun control panel (GCP) in the Mk 75 gun mount control system?

1. It provides the intermediate link between the fire control system and the gun mount
2. It provides for barrel cooling
3. It provides air conditioning and heating in the ammo handling room
4. It provides sprinkler protection for the ammo handling room

5-49. The inner surface of the gun port shield comes equipped with what total number of heating elements?

1. Nine
2. Eight
3. Seven
4. Six

5-50. What Mk 75 assembly allows for unlimited training of the gun mount?

1. Slip ring
2. Barrel cooling
3. Heating element
4. Ventilation

5-51. Which of the following systems is NOT an auxiliary system on the Mk 75 gun mount?

1. Lighting
2. Loading
3. Telephone
4. Ventilation

5-52. Train movement is possible to what total number of degrees on the Mk 75 gun mount?

1. 720 degrees
2. 540 degrees
3. 360 degrees
4. Unlimited

5-53. The train system on the Mk 75 is powered by what total number of electrical motors?

1. One
2. Two
3. Three
4. Four

5-54. The train motor cannot be energized with the training handcrank in place.

1. True
2. False

5-55. What device drives the firing cutout camstack assembly on the Mk 75 gun mount?

1. The synchro gearing in the bottom of the train synchro control box
2. The synchro gearing in the bottom of the elevation power drive
3. The receiver regulator gearing
4. The train motor

5-56. The Mk 75 gun mount train and elevation systems use different power supplies.

1. True
2. False

5-57. What device regulates the polarity and amplitude of the current supplied to the train and elevation motors?

1. GCP
2. Motor control system
3. Silicon-controlled rectifiers
4. Demodulator circuits

5-58. The Mk 45 gun mount control system controls which of the following components?

1. Gun laying only
2. Gun loading only
3. Gun laying and gun loading
4. FCS interface

5-59. What is the purpose of the Mk 45 gun mount EP1 panel and where is it located?

1. It distributes power to the control components and is located in the gun pocket
2. It distributes hydraulic fluid power and is located in the loader room
3. It distributes power to the control components and is located in the loader room
4. It distributes power to the control components and is located in the magazine

5-60. What is the purpose of the Mk 45 gun mount EP2 panel and where is it located?

1. It controls the gun mount in remote control and is located in the gun pocket
2. It controls the gun mount operations and provides a means for testing and exercising the gun-laying and gun-loading systems and is located in the loader room
3. It controls the gun mount hydraulic system and is located in the magazine
4. It controls the gun mount operations and provides a means for testing and exercising the gun-laying and gun-loading systems and is located in CIC

5-61. The Mk 45 gun mount EP3 panel is located in what area?

1. The loader room
2. The magazine
3. The gun pocket
4. The passageway adjacent to the gun mount

5-62. What device, if any, prevents the Mk 45 EP1 panel door from being opened when normal or alternate 440-VAC is applied to the panel?

1. The hasp and lock
2. The mount captain
3. A solenoid door latch
4. None

5-63. The train and elevation local control unit is in what location on the Mk 45 gun mount?

1. On top of the EP1 panel
2. In the gun mount pocket
3. In CIC
4. On top of the EP2 panel

5-64. The ship's 400-Hertz power is used for which of the following in weapons systems?

1. Power drives
2. Loading and power drives
3. Synchros, fuze setters, and sights
4. Elevators

5-65. When working with electrical circuits, in addition to tagging out the circuit you are working on, what else must you do to ensure your safety?

1. Have a second person stand by the tagged out switch
2. Remove any fuses protecting the circuit you are working on
3. Disconnect the power cables to the unit you are working on
4. Tag out several switches in the circuit providing power to the unit you are working on

5-66. At what minimum intensity may electric current cause death?

1. 1.0 amp
2. 0.5 amp
3. 0.25 amp
4. 0.1 amp

5-67. What is the normal position of the retractable rail on the Mk 13 Mod 4?

1. Extended
2. Neutral
3. Retracted
4. Stow

5-68. On the Mk 13 Mod 4, what factor causes the rail to start its retract cycle after a missile firing?

1. Missile control circuits
2. Forward missile shoe
3. Missile tail-control surface
4. Missile rocket motor

5-69. On the Mk 13 Mod 4, what device(s) cause(s) the rail to start its retract cycle during dud jettison, step load, or exercise operations?

1. Solid-state interlocks energizing the retract launcher rail solenoid LHL1-LC3
2. Solid-state interlocks energizing the retract launcher rail solenoid LHL1-LC4
3. Solid-state interlocks energizing the retract launcher rail solenoid LHL1-LC1
4. The forward missile shoe

5-70. On the Mk 13 Mod 4, the launcher rail automatically extends following missile firing or jettisoning operations.

1. True
2. False

ASSIGNMENT 6

Textbook Assignment: "Gun Mounts," chapter 6, and "GMLS:Primary Functions and Descriptions," chapter 7, pages 6-1 through 7-50.

6-1. What is the main purpose of gun-loading equipment?

1. Handle ammunition
2. Stow ammunition
3. Load a complete round of ammunition in the chamber for firing
4. To position the gun for firing

6-2. Positioning equipment includes all the machinery used to support and move the mount or launcher in what direction?

1. Train only
2. Elevation only
3. Train (vertical) and elevation (horizontal)
4. Train (horizontal) and elevation (vertical)

6-3. What is considered the STAND on a mount or launcher?

1. Foundation and rotating surface for movement in train
2. Rotating surface for movement in elevation only
3. Rotating surface for movement in train and elevation
4. Support for the ammunition hoist

6-4. When a gun mount fires, what component moves during recoil?

1. Stand
2. Slide
3. Housing
4. Base ring

6-5. What type of breechblock is used on the Mk 45 and Mk 75 gun mounts?

1. Blocked
2. Sliding wedge
3. Plugged
4. Interrupted thread

6-6. What gas is used in the counterrecoil system on the Mk 45 gun mount?

1. Air
2. Argon
3. Nitrogen
4. Oxygen

6-7. On the Mk 45 gun mount, what factor or device holds the qun in battery if pressure is lost in the counterrecoil system?

1. Gravity
2. A safety link
3. An electric motor
4. Air drives

6-8. What is the purpose of a firing cutout mechanism?

1. Supplies the firing voltage for emergency power
2. Interrupts firing when the gun is pointed at or near a permanent ship's structure
3. Interrupts firing when power drives fail
4. Solves complex fire control problems

6-9. What MUST be completed on all weapon systems before firing?

1. Postfire PMS
2. Prefire PMS
3. INSERV inspection
4. Magazine inventory

6-10. What is the rate of fire of the Mk 45 gun mount?

1. 10 rounds per minute
2. 16 to 20 rounds per minute
3. 25 rounds per minute
4. 40 rounds per minute

6-11. On the Mk 45 gun mount, the loader drum will hold what total number of rounds?

1. 11
2. 20
3. 30
4. 40

6-12. On the Mk 45 gun mount, when the upper hoist raises a round into the cradle, what device holds the round position when the hoist lowers?

1. Hoist latches
2. Cradle latches
3. Hoist pawl
4. Cradle pawl

6-13. On the Mk 45 gun mount, what is the last component to be latched into the FIRE position?

1. Cradle
2. Hoist
3. Rammer
4. Empty case tray

6-14. What is the correct ammunition for the Mk 75 gun mount?

1. 75-mm, 61-caliber
2. 76-mm, 62-caliber
3. 77-mm, 63-caliber
4. 78-mm, 64-caliber

6-15. The Mk 75 gun mount can fire what maximum number of rounds per minute?

1. 10
2. 40
3. 80
4. 99

6-16. The revolving magazine on the Mk 75 gun mount holds what total number of rounds?

1. 15
2. 20
3. 70
4. 80

6-17. On the Mk 75 gun mount, the screw feeder holds what total number of rounds?

1. Seven
2. Six
3. Five
4. Four

6-18. On the Mk 75 gun mount, the loader drum holds what total number of rounds?

1. One
2. Two
3. Three
4. Four

6-19. What is the definition of a misfire?

1. A round of ammunition that missed the target
2. The failure of a round of ammunition to fire after the initiating action
3. Ammunition that has jammed in the loading system
4. A fire in the magazine

6-20. What is the definition of a hangfire?

1. The firing of a round before it is completely rammed
2. A timed delay fuze that ignites prematurely
3. A firing delay beyond the normal ignition time after the initiating action
4. A round hanging in the loading system

6-21. When is a 5"/54 gun considered to be a hot gun?

1. After firing 40 rounds in 4 hours
2. After firing 50 rounds in 4 hours
3. After firing 20 rounds in 2 hours
4. After firing 25 rounds in 2 hours

6-22. When a misfire occurs in a hot gun, what information is needed to determine if a 10-minute safe clearing time exists?

1. The number of rounds fired only
2. The number of rounds fired and the time duration of firing only
3. The number of rounds fired, the time duration of firing, and the time of the last attempt to fire
4. The time duration of firing only

6-23. When is external cooling started when a misfire occurs in a hot gun?

1. Immediately
2. After permission from the commanding officer is obtained
3. After the propelling charge is removed
4. Before evacuating the gun at the end of the 10-minute safe clearing time

6-24. Which of the following actions is NOT a cause of gun misfires?

1. Switch malfunctions
2. A faulty powder charge
3. A misaligned mechanical latch
4. Not being on a safe fire bearing

6-25. When is internal cooling started when a misfire occurs in a hot gun?

1. Immediately
2. After permission from the commanding officer is obtained
3. After the propelling charge is removed
4. Before evacuating the gun at the end of the 10-minute safe clearing time

6-26. Why should you verify equipment position when a gun misfires?

1. To ensure that all equipment is clear of recoiling components before using emergency firing circuits that bypass safeties
2. To help determine the cause of the misfire
3. To ensure that the gun is positioned at a safe fire bearing
4. To ensure that all components are in the ram position

6-27. Who supervises the clearing of a misfire?

1. The magazine crew leader
2. The mount captain
3. The OOD
4. The hot gun crew

6-28. Before opening the breech of a gun that has misfired, why should you wait 30 seconds after the last attempt to fire?

1. To allow for the possibility of a hangfire
2. To allow the hot gun crew time to get in place
3. To allow time for starting external cooling
4. To allow time for notifying the commanding officer of the situation and to get his permission to proceed

6-29. Which of the following publications contains information on clearing live ammunition from guns?

1. SW100-AB-CDF-010
2. SW200-BC-SAF-010
3. SW300-BC-SAF-010
4. SW400-CD-EFG-010

6-30. The Mk 13 Mod 4 GMLS can stow up to what total number of missiles?

1. 22
2. 30
3. 40
4. 100

6-31. What maximum number of missiles can be stowed in the (a) outer and (b) inner rings on the Mk 13 Mod 4 GMLS?

1. (a) 10 (b) 20
2. (a) 20 (b) 20
3. (a) 24 (b) 16
4. (a) 40 (b) 16

6-32. What is the function of the plenum chamber on the Mk 13 Mod 4 GMLS?

1. Acts as a storage space for PMS materials
2. Acts as a sound buffer
3. Vents gases during routine missile firing
4. Vents gases if a missile accidentally ignites in the magazine

6-33. The Mk 13 Mod 4 GMLS has what maximum number of train load positions?

1. 10
2. 2
3. 3
4. 4

6-34. What is the load position for the outer ring on the Mk 13 Mod 4 GMLS?

1. 180 degrees
2. 270 degrees
3. 300 degrees
4. 320 degrees

6-35. What is the load position for the inner ring on the Mk 13 Mod 4 GMLS?

1. 180 degrees
2. 270 degrees
3. 300 degrees
4. 0 degrees

6-36. What is the function of the dud-jettison unit on the Mk 13 Mod 4 GMLS?

1. Ejects missiles overboard that fail to fire and are unsafe to return to the magazine
2. Ignites missiles that have misfired
3. Used as a backup firing cutout mechanism
4. Guides the missile on the rail

6-37. The two modes of control on the Mk 13 GMLS are the automatic and what other mode?

1. Exercise
2. Load
3. Remote
4. Step

6-38. Under ideal conditions, the Mk 13 GMLS has what successive firing rate interval for standard missiles?

1. 10 seconds
2. 22 seconds
3. 33 seconds
4. 40 seconds

6-39. Under ideal conditions, the Mk 13 GMLS has what successive firing rate interval for harpoon missiles?

1. 10 seconds
2. 22 seconds
3. 33 seconds
4. 40 seconds

6-40. Under normal conditions, what are the manning requirements for the Mk 13 GMLS?

1. One
2. Two
3. Three
4. Four

6-41. What is the primary purpose of the aft-motion latch on the Mk 13 GMLS?

1. To act as a discharge path for electrostatic charges on the missile surface
2. To act as a stop that prevents a missile from moving backwards on the retractable rail
3. To act as a guide for the missile to return to the magazine
4. To act as a power connection point for the missile

6-42. What latch prevents a missile from moving forward on the rail and falling onto the deck?

1. Aft-motion
2. Forward-motion
3. Mid-motion
4. Missile-motion

6-43. On the Mk 13 GMLS, when a missile is fired or dud-jettisoned, it must overcome a restraining force of what total number of pounds?

1. 1,132
2. 2,320
3. 3,332
4. 4,323

6-44. What is the main function of the key-operated lock in the release piston linkage on the Mk 13 GMLS?

1. To act as a safety device
2. To act as a train brake release
3. To act as an elevation brake release
4. To act as a forward-motion latch release

6-45. The blast door on the Mk 13 GMLS is operated by what type of power?

1. Electrical
2. Hydraulic
3. Manual
4. Mechanical

6-46. The Mk 13 GMLS train and elevation power drives are in what location?

1. Inner structure of the magazine
2. Inside the trunnions
3. Outer structure of the magazine
4. Under the magazine

6-47. What power panel on the Mk 13 GMLS is the power distribution unit?

1. EP1
2. EP2
3. EP3
4. EP4

6-48. What power panel on the Mk 13 GMLS is the control unit?

1. EP1
2. EP2
3. EP3
4. EP4

6-49. The upper section of the EP2 panel on the Mk 13 GMLS contains switches related to what type of operation?

1. Launcher power
2. Elevation power
3. Launcher status
4. Missile status

6-50. What device(s) is/are contained in the lower section of the EP2 panel on the Mk 13 GMLS?

1. Launching system controls and indicators
2. Missile status display
3. Fire control computer
4. STIR equipment

6-51. What is the function of the EP3 panel on the Mk 13 GMLS?

1. Contains missile status indicators
2. Supplies fire control ballistic solutions
3. Contains the electronic control and test equipment for launcher train and elevation power drives
4. Contains missile firing indicators

6-52. The Mk 26 GMLS is capable of how much train?

1. 180 degrees
2. 270 degrees
3. 420 degrees
4. Unlimited

6-53. Which of the following components or actions is NOT required on the Mk 26 GMLS for the ASROC missile?

1. Adapter rail
2. Missile fins
3. Missile preflight preparations
4. Launcher synchronized with FCS

6-54. During normal tactical operations, what is the manning requirement for the Mk 26 GMLS?

1. One
2. Two
3. Three
4. Four

6-55. What is the main function of the hanger rail assembly on the Mk 26 GMLS ?

1. Dud missile stowage
2. Dud-jettison
3. Support for the sprinkler system
4. Supports and holds a missile on the RSR

6-56. Where is the snubber assembly mounted and what is its main function on the Mk 26 GMLS?

1. Mounted on the guide arm and used to push the missile
2. Mounted in the magazine and used to support sprinkler piping
3. Mounted to the back of each hanger rail and used to stabilize the missile in the RSR
4. Mounted to the back of each hanger rail and used to provide an electrical connection

6-57. What total number of latch groups are associated with the pusher bar on the Mk 26 GMLS?

1. One
2. Two
3. Three
4. Four

6-58. During operations on the Mk 26 GMLS, what is the function of the buckling link on the hoist chain assembly?

1. To compensate for any overtravel of the chain on an extend cycle
2. To parbuckle the missile to the guide arm
3. To make possible the proper positioning and alignment of missiles on the launcher guide arm
4. To steady the missile on the hoist chain

6-59. What total number of launcher hydraulic systems are on the Mk 26 launcher?

1. One
2. Two
3. Three
4. Four

6-60. Where is the train power drive located on the Mk 26 launcher and what is its primary function?

1. Located on top of the launcher platform and drives the launcher through the training circle gear mounted to the base ring
2. Located under the launcher platform and drives the guide arms through the elevation arc
3. Located in the carriage and supplies hydraulic power to the RSR
4. Located under the launcher platform and drives the launcher through the training circle gear mounted to the base ring

6-61. Where is the elevation power drive located on the Mk 26 launcher?

1. Inside the carriage
2. Under the launcher platform
3. On top of the launcher platform
4. Inside the magazine

6-62. What is the primary function of the elevation power drive on the Mk 26 launcher?

1. Supplies hydraulic power to the train system
2. Drives the guide arms through the elevation arc and provides hydraulic power to the guide arm components
3. Depresses the guide arms and supplies power to the train system
4. Elevates the guide arms only and supplies power to the emergency accumulator system

6-63. What water- and blast-tight compartment is located at the hoist end of the magazine on the Mk 26 GMLS?

1. DCC
2. FCS
3. ICS
4. WCS

6-64. The Main Control Console (MCC) on the Mk 26 GMLS contains the operating controls and indicators needed for what functions?

1. Magazine and missile status
2. Programming launcher system operations only
3. Monitoring launcher system operations only
4. Programming and monitoring launcher system operations

6-65. The video monitor module consists of a TV screen and associated electrical components used for watching what areas of the Mk 26 GMLS?

1. Bridge area
2. Launcher area only
3. Magazine areas only
4. Launcher area or rear magazine areas

6-66. On the Mk 26 GMLS, the console shelf assembly has five separate modules. Which module contains the launcher warning bell switch?

1. Strikedown step
2. Launcher step
3. System control
4. System availability

6-67. Missiles are contained in what manner on the Mk 41 VLS?

1. In separate sealed canisters that are installed vertically belowdeck in individual cells of a vertical launcher
2. In separate sealed canisters that are installed horizontally belowdeck in the RSR
3. In separate sealed canisters that are installed vertically above deck in the ABL
4. On hanger rails in the magazine

6-68. The Mk 41 VLS contains what total number of launcher control units?

1. One
2. Two
3. Three
4. Four

6-69. One launcher control unit can control what total number of missiles in either launcher?

1. One
2. Two
3. Three
4. All

6-70. What total number of missiles may be contained in the Mk 158 Mod 0 vertical launcher?

1. 21
2. 29
3. 61
4. 69

6-71. What total number of missiles may be contained in the Mk 159 Mod 0 vertical launcher?

1. 21
2. 29
3. 61
4. 69

ASSIGNMENT 7

Textbook Assinment: "GMLS: Secondary and Auxiliary Functions," chapter 8, and "SMS Guided Missiles, Aerodynamics, and Flight Principles, "chapter 9, pages 8-1 through 9-24.

7-1. What does "dud jettisoning" refer to as a Gunner's Mate?

1. A missile that has a delay in firing or leaving the rail
2. The act of clearing an unwanted missile from a launcher guide rail by ejecting it overboard
3. The act of cleaning the launcher after firing
4. The act of disposing of retrograde

7-2. The Mk 13 Mod 4 GMLS jettison device is essentially what type of piston?

1. Low-pressure, hydropneumatic ram-type piston
2. Medium-pressure, hydropneumatic ram-type piston
3. High-pressure, hydropneumatic ram-type piston
4. High-pressure, hydraulic piston

7-3. On the Mk 13 Mod 4, jettison operations may be performed in the remote, local, or exercise mode as selected by the EP2 panel operator.

1. True
2. False

7-4. What gas does the Mk 13 Mod 4 GMLS jettison device use?

1. Argon
2. Helium
3. Nitrogen
4. Oxygen

7-5. What device is used to increase the nitrogen pressure on the Mk 13 Mod 4 GMLS jettison device tank?

1. Automatic booster pump
2. HP air
3. LP air
4. Manual booster pump

7-6. The nitrogen tank is pressurized to about what psi on the Mk 13 Mod 4 GMLS jettison device?

1. 1,000
2. 1,500
3. 2,000
4. 2,400

7-7. The Mk 26 GMLS has what total number of jettison devices per launcher?

1. One
2. Two
3. Three
4. Four

7-8. What device or substance provides the jettison ejecting force on the Mk 26 GMLS jettison device?

1. Explosive gas generator
2. Nitrogen PSI
3. Ships HP air
4. Ships LP air

7-9. On the Mk 26 GMLS, how many times can the gas generator be fired before it must be replaced?

1. One
2. Two
3. Three
4. Four

7-10. On the Mk 26 GMLS, what will happen if the gas generator accidentally fires while the jettison device is retracted?

1. The piston will be ejected over the side of the ship
2. A pressure safety relief mechanism will safely vent the expanding gases to the atmosphere
3. The gas generator will explode throwing metal pieces about the launcher
4. A pressure safety relief mechanism will vent gases into the plenum

7-11. Which of the following devices or components are NOT part of the strikedown gear on the Mk 13 Mod 4 GMLS ?

1. Air supply components
2. Chain-drive fixture
3. Hand-control unit
4. J-davit

7-12. The Mk 13 Mod 4 strikedown hand-control unit can control train and elevation launcher movements, the elevation positioner (latch), and what other action?

1. Elevation power drive brake only
2. Train power drive brake only
3. Elevation and train power drive brakes
4. A loaded transfer dolly

7-13. The strikedown chain-drive fixture on the Mk 13 Mod 4 serves what purpose?

1. Pulls the missile up to the guide arm only
2. Lowers the missile to the dolly only
3. Lowers the missile to the magazine
4. Pulls the missile up to the guide arm and lowers the missile to the dolly

7-14. The strikedown manual air-control valve on the Mk 13 Mod 4 has three positions. Which of the following is NOT a position on the valve?

1. Extend
2. Neutral
3. Overdrive
4. Retract

7-15. What device or individual drives the Mk 13 Mod 4 launcher to the predetermined strikedown position?

1. EP2 panel operator
2. Fixed-position synchros
3. CIC
4. Safety officer

7-16. The LOAD/UNLOAD position on the Mk 13 Mod 4 launcher is at what elevation?

1. 15 degrees
2. 35 degrees
3. 45 degrees
4. 90 degrees

7-17. What is the purpose of the strikedown/intertransfer mechanism on the Mk 26 GMLS?

1. Moves missiles from RSR to RSR only
2. Moves missiles between the deck and magazine only
3. Moves missiles between the deck and magazine and from RSR to RSR
4. Moves the missile from the dolly

7-18. On the Mk 26 GMLS, what maximum number of degrees can the index drum be rotated to either side of centerline when the carrier assembly is in the magazine?

1. 45 degrees
2. 50 degrees
3. 60 degrees
4. 80 degrees

7-19. When the carrier assembly is raised to the deck level, what maximum number of degrees can the index drum be rotated to either side of centerline?

1. 45 degrees
2. 50 degrees
3. 60 degrees
4. 80 degrees

7-20. The strikedown/intertransfer mechanism on the Mk 26 GMLS receives its hydraulic fluid supply from what source?

1. Train power-drive
2. Elevation power-drive
3. A-RSR/hoist power-drive only
4. A- or B-RSR/hoist power-drive

7-21. On the Mk 26 GMLS, what special piece of equipment is used to transfer an ASW missile between its shipping container and the strikedown beam?

1. AAW container receiver plate
2. ASW container receiver plate
3. Aft-shoe receptacle
4. Forward-shoe receptacle

7-22. A typical GMLS carbon dioxide (CO_2) system is permanently installed (fixed) in the magazine area primarily to fight what type of fire?

1. Electrical
2. Fuel
3. Missile
4. Retrograde

7-23. A typical GMLS carbon dioxide (CO_2) system can be activated in what manner?

1. Automatically only
2. Manually from local only
3. Manually from remote only
4. Automatically or manually from local and remote

7-24. In a GMLS CO_2 system, the HSD fusible link is designed to melt at what temperature?

1. 100°F (±3°)
2. 120°F (±3°)
3. 150°F (±3°)
4. 160°F (±3°)

7-25. On a typical water injection system, once the system is activated, it can be secured in what reamer?

1. Automatically
2. By DC central
3. Manually
4. By bridge controls

7-26. What is the purpose of a typical water injection system?

1. It places a charged supply of freshwater under each missile
2. It cools down the blast doors after firing
3. It keeps the missile from over heating in the magazine
4. It is used for freshwater washdown

7-27. Why is freshwater used in a typical water injection system?

1. It does not promote corrosion as quickly as salt water
2. It conducts electricity better than salt water
3. It is readily available
4. Because of system design

7-28. The compression tank of a water injection system is usually in what location?

1. In the magazine
2. On the main deck
3. In the engine room
4. On a deck below the magazine

7-29. The compression tank of a water injection system is charged to (a) what psi and from (b) what source?

1. (a) 100 psi (b) ships LP air
2. (a) 200 psi (b) ships HP air
3. (a) 300 psi (b) nitrogen flask
4. (a) 400 psi (b) ships firemain

7-30. At what point, if ever, does salt water enter the water injection system when activated?

1. As firemain pressure equals or exceeds freshwater pressure
2. On activation
3. When manually turned on
4. Never

7-31. The Mk 13 GMLS water injection system has what total number of detector nozzles?

1. 16
2. 24
3. 40
4. 96

7-32. What is the main feature of a dry-type sprinkler system?

1. Uses dry-type chemicals
2. The piping from the outlet side of the main sprinkler control valve up to the sprinkler head contains no water in a normal or ready state
3. Used in small-arms magazines only
4. Used in missile magazines only

7-33. What type of sprinkler system is unique to the Mk 41 VLS?

1. CO_2
2. Deluge
3. Dry-type
4. Wet - type

7-34. What is the definition of "Restrained firing”?

1. A delay in the missile leaving the rail
2. A premature missile motor burnout
3. Missile motor ignition and subsequent rupturing of the canister after closure without missile motion
4. A missile motor failing to ignite

7-35. What is the definition of "Overtemperature" on the Mk 41 VLS?

1. Internal canister temperature of 190°F or above WITHOUT a missile present
2. Internal canister temperature of 180°F or below WITH a missile present
3. Internal canister temperature of 190°F or above WITH a missile present
4. External canister temperature of 190°F or below WITH a missile present

7-36. What is the deluge flow rate on the Mk 41 VLS?

1. 20 gpm
2. 30 gpm
3. 40 gpm
4. 100 gpm

7-37. What is the major advantage of missiles being made up of several sections?

1. Strength only
2. Simplicity only
3. Strength, simplicity, and easier replacement and repair of components
4. Easier replacement and repair of components only

7-38. Missiles exist for what primary purpose?

1. To carry the warhead to the target
2. To add ballast to a warship
3. Training
4. As a deterrent to enemy aircraft

7-39. Why is the forward section of a missile covered by a radome?

1. Aids in flight
2. Aids in stability
3. Protects a small radar antenna inside the missile
4. Protects the warhead during stowage

7-40. why are airfoils (wings, fins, or control surfaces) attached to the body of a missile?

1. For in-flight stability only
2. Provides lift only
3. Controls the missile’s flight path only
4. For in-flight stability, provides lift and controls the missile’s flight path

7-41. What are the principal forces acting on a missile in level flight?

1. Drag, lift, speed, weight
2. Drag, gravity, thrust, weight
3. Drag, lift, thrust, weight
4. Lift, resistance, thrust, weight

7-42. What rotary movements can a missile make in flight?

1. Lateral, roll, and yaw
2. Pitch, roll, and vertical
3. Roll, yaw, and vertical
4. Pitch, roll, and yaw

7-43. What linear movements can a missile make in flight?

1. Lateral, vertical, and yaw
2. Lateral, vertical, and along the direction of trust
3. Lateral, vertical, and pitch
4. Pitch, roll, and yaw

7-44. What is the definition of "precession" when referring to gyros in guided missiles?

1. Movement in a straight line
2. Movement at a right angle to the direction of the applied force
3. No movement, stable flight
4. Opposing force applied to movement in any direction

7-45. Which of the following is NOT a function of a missile’s guidance system?

1. Computing
2. Directing
3. Steering
4. Tracking

7-46. Which of the following is a function of a missile’s control system?

1. Computing
2. Directing
3. Steering
4. Tracking

7-47. A missile in-flight guidance is divided into what three phases?

1. Boost, computing, and tracking
2. Boost, midcourse, and computing
3. Boost, midcourse, and terminal
4. Boost, steering, and terminal

7-48. Which of the following is NOT a homing guidance system used by a SMS missile?

1. Active
2. Passive
3. Radio command
4. Semiactive

7-49. What device switches guidance subsystems during missile flight?

1. Control matrix
2. Electronic timing device
3. Propulsion unit
4. Receiver/transmitter

7-50. Which of the following missile guidance systems are best suited for large, long range, land targets?

1. Radar command and homing
2. Active and semiactive
3. Passive and composite
4. Celestial and terrestrial

7-51. What type of propulsion is employed by guided missiles?

1. Gravity
2. Gun
3. Impulse
4. Reaction

7-52. What is the major disadvantage of a missile with a turbojet engine?

1. Fuel
2. Payload
3. Speed
4. Weight

7-53. Which of the following is NOT a major element of a solid fuel rocket motor propulsion unit?

1. Combustion chamber
2. Exhaust nozzle
3. Guidance system
4. Igniter

7-54. What term is used to describe the igniter on a solid fuel rocket motor?

1. Cap
2. Firing pin
3. Reduced charge
4. Squib

7-55. What are the optimum temperature ranges for most solid propellants in stowage for solid rocket motors?

1. 10°F - 50°F
2. 50°F - 70°F
3. 70°F - 100°F
4. 100°F - 160°F

7-56. What factor determines a missile's maximum turning rate?

1. Acceleration
2. G- force
3. Thrust
4. Weight

7-57. In relation to the speed of sound, a missile traveling at Mach 2 would be traveling at what speed?

1. Speed of sound
2. One-half the speed of sound
3. Twice the speed of sound
4. Two tenths the speed of sound

7-58. Which of the following warheads would be most effective against underwater targets?

1. Blast-effect
2. Fragmentation
3. Illumination
4. Inert

7-59. In guided missiles, a command fuze is often used for what primary reason?

1. Time delay
2. Self-destruct
3. Jamming
4. Arming

7-60. Which of the following descriptions best describes a Harpoon missile?

1. Subsonic, low altitude cruise missile for use against surface targets only
2. Subsonic, low altitude cruise missile for use against air targets only
3. Supersonic, high altitude cruise missile for use against air and surface targets
4. Supersonic, low altitude cruise missile for use against surface targets only

ASSIGNMENT 8

Textbook Assignment: "Target Detection and Weapons Control," chapter 10, "Alignment," chapter 11, and "Maintenance," chapter 12, pages 10-1 through 12-41.

8-1. What is the function of the Naval Tactical Data System (NTDS)?

1. To provide raw target information to the ship's fire control systems
2. To provide raw target information to other ships
3. To process target data for use by weapon systems and other ships
4. To turn digital target data into raw target data for use by weapon systems

8-2. Which of the following tactical data does NOT describe the tactical picture supplied by NTDS?

1. Real time
2. Projection
3. Based on available sensor data
4. A correlation of sensor data

8-3. In addition to range and bearing, what other target information is supplied by a three-coordinate radar?

1. Speed
2. Elevation angle and IFF
3. IFF only
4. Target angle

8-4. What is the function of ECCM in a radar unit?

1. To jam enemy sensors
2. To deceive enemy missiles
3. To mask the location of the ship
4. To counter the effects of jamming

8-5. What type of unit is used to detect and identify targets by their electronic emissions?

1. ASCM
2. ECCM
3. ESM
4. IFF

8-6. Which of the following data is required to determine a target's range using ESM?

1. A series of target readings
2. A reading of the magnitude of the detected signal
3. A source suggestion supplied by the equipment
4. A vector by a second platform equipped with ESM equipment

8-7. Which of the following target engagement actions is NOT a function of the WCS?

1. Processing raw target data for target engagements
2. Controlling target engagements
3. Scheduling target engagements
4. Assessing target engagements

8-8. What weapon system component assigns a threat priority to targets?

1. WCS
2. NTDS
3. IFF
4. ECCM

8-9. What system allows all or parts of a weapon engagement to be executed automatically?

1. WDS
2. NTDS
3. ESM
4. ECCM

8-10. What WDS function allows for the automatic engagement of targets approaching from a specified direction?

1. Custerhorn
2. Auto-Engage
3. Priority response
4. QR zones

8-11. Which of the following orders is NOT an element of a gun fire control solution?

1. Train orders
2. Elevation orders
3. Parallax orders
4. Fuze orders

8-12. What target information does a fire control system's radar and director provide to the computer?

1. Range, bearing, and elevation
2. Range and bearing only
3. Range, bearing and IFF
4. Range, bearing, and speed

8-13. What input does a stable element provide to the fire control computer?

1. A stable vertical reference
2. A stable horizontal reference
3. Own ship's course data
4. A stable central reference

8-14. What effect does the parallax correction account for in the control solution?

1. Having a gun and the director in the same location
2. Firing from a constantly moving platform
3. Having the gun in a dIFFerent location than the director
4. The effects of interior ballistics on gun performance

8-15. Which of the following terms describes the speed of a projectile at the instant it leaves the bore of a gun?

1. Interior ballistics
2. Ballistics speed
3. Initial velocity
4. Initial ballistics travel

8-16. What effect does bore enlargement due to repeated firing of a gun have on the ballistic solution?

1. It increases initial velocity
2. It decreases initial velocity
3. It increases ballistic speed
4. It decreases ballistic speed

8-17. What is the function of rifling in a gun barrel?

1. To provide a seal to prevent propellent gases from leaking past the projectile
2. To prevent bore erosion
3. To impart a stabilizing spin to projectiles when they are fired
4. To stabilize the projectile in the bore of the gun when it is fired

8-18. Which of the following environmental factors is NOT included in exterior ballistics?

1. Air density
2. Bore erosion
3. Gravity
4. Drift

8-19. What environmental factor determines the amount of resistance a projectile Will experience while in flight?

1. Air temperature
2. Air density
3. Barometric pressure
4. Wind

8-20. What are the two components of true wind?

1. Range wind and cross wind
2. Range wind and drift
3. Drift and ballistic wind
4. Ballistic wind and range wind

8-21. In what direction do gun projectiles tend to drift?

1. With the ballistic wind
2. Against the ballistic wind
3. In the same direction as the gun's rifling twists
4. In the direction of the cross wind

8-22. What reference line is used to determine the present location of the target?

1. Line of sight
2. Line of fire
3. Sight angle
4. Sight deflection

8-23. In the fire control problem, what reference line represents the difference between the line of fire and the line of sight?

1. Sight deflection
2. Sight angle
3. Drift
4. Parallax

8-24. What feature allows AEGIS to rapidly detect system failures?

1. Conveniently located test points and jumper locations
2. Built-in test
3. Fault alarms
4. Built-in gauges

8-25. What element of the AEGIS system performs automatic fault detection and system reconfiguration?

1. ACTS
2. ADS
3. C&D
4. ORTS

8-26. What is the purpose of the doctrine statements used in the AEGIS system?

1. To define automatic actions
2. To sequence target engagements
3. To restrict access to weapon firing controls
4. To provide computerized training for operators

8-27. Which of the following is NOT a function of the AN/SPY-1 radar system?

1. To provide midcourse guidance for standard missiles
2. To search for targets
3. To track targets
4. To control air engagements

8-28. Which of the following AEGIS subsystems is used to control the AEGIS mission?

1. ACTS
2. C&D
3. ORTS
4. WCS

8-29. Which of the following AEGIS subsystems acts as an interface between C&D and the FCS?

1. ACTS
2. ADS
3. ORTS
4. WCS

8-30. Which of the following AEGIS subsystems provides training for system operators?

1. ACTS
2. ADS
3. ORTS
4. WCS

8-31. What components of the Mk 34 GWS converts the ballistic solution into gun orders?

1. SDC
2. GMP
3. GC
4. CDC

8-32. From what station in the Mk 34 GWS should an operator manually select the ammunition type?

1. GC
2. GCC
3. GMP
4. SDC

8-33. What is the function of the velocimeter of the Mk 34 GWS?

1. To dampen the train and elevation movements of the gun mount
2. To accurately determine target speed
3. To update projectile initial velocity
4. To allow all system components to track at the same rate

8-34. Which of the following capabilities is NOT currently available with the Mk 86 FCS?

1. SM-1 missile engagements
2. SM-2 missile engagements
3. Gun engagements with surface targets using the 5"/54 Mk 45 gun
4. Gun engagements with air targets using the Mk 75 gun

8-35. From what position in the Mk 86 FCS is radar tracking of a target initiated?

1. WCC
2. COC
3. I/O console
4. Mk 113 control console

8-36. From what position in the Mk 86 FCS is ammunition selection entered?

1. WCC
2. COC
3. I/O console
4. Mk 67 control console

8-37. From what position in the Mk 86 FCS do operators run a system diagnosis?

1. WCC
2. COC
3. I/O console
4. Mk 67 control

8-38. The forward TV sight is mounted in what location on the Mk 86 FCS?

1. On the AN/SPA-9A antenna
2. On the AN/SPG-60 antenna
3. On the optical sight gimbals
4. On the data/video unit

8-39. The gun line-of-fire is determined in what device in the Mk 86?

1. In the AN/SPR-9A
2. In the MTRR
3. In the AN/UYK-7
4. In the WCC

8-40. Which of the following systems can be controlled by the Mk 92 FCS?

1. The Mk 75 gun only
2. The Mk 13 Mod 4 GMLS only
3. The Mk 75 gun and the MIC 13 Mod 4 GMLS
4. Weapons Alpha

8-41. What unit of the Mk 92 FCS provides long range tracking for the systems?

1. CAS tracking antenna
2. CAS search antenna
3. STIR
4. CAS WCC

8-42. What unit of the Mk 92 FCS provides IFF interrogation?

1. CAS tracking antema
2 CAS search antenna
3. STIR
4. CAS WCC

8-43. Gun mount and/or missile launcher position orders originate from what location in the Mk 92 FCS?

1. The CAS WCC
2. The WCP
3. The DEAC
4. The STIR WCC

8-44. From what console in the Mk 92 FCS can track data be entered in casualty mode operation?

1. The WCO
2. The DEAC
3. The WCP
4. The CAS WCC

8-45. From what major area(s) do/does system maintenance tests check equipment?

1. Alignment only
2. Electrical operability only
3. Gyro inputs
4. Alignment and electrical operability requirements

8-46. What is the primary purpose of the DSOT?

1. To assess missile system readiness in its normal mode of operation only
2. To assess gun systems readiness in its normal mode of operation only
3. To assess missile and gun systems readiness in their normal mode of operation
4. To assess missile and gun systems readiness in their causality mode of operation

8-47. A training missile consists of what major subassemblies?

1. Training missile shape only
2. Guided missile simulator only
3. Training missile and guided missile simulator
4. Tactical missile and guidance system

8-48. GMTRs are carried aboard combatant ships for what purpose?

1. Handling training
2. Damage control
3. Display only
4. Training and testing

8-49. When is combat system alignment established?

1. When the ship is commissioned
2. As the ship is constructed
3. Periodically by the crew while the ship is in commission
4. After the ship is constructed but before it is commissioned

8-50. What is the job of the ship’s crew in regard to combat system alignment?

1. To establish alignment only
2. To verify alignment only
3. To establish and verify alignment
4. To verify and correct alignment as necessary

8-51. What is the first reference plane established in a combat system?

1. Centerline
2. MRP
3. Ship’s base plane
4. WCRP

8-52. What reference plane is used to establish train zero?

1. The WCRP
2. The SBP
3. The MRP
4. The CRP

8-53. What reference plane is designated as the alignment reference?

1. The WCRP
2. The SBP
3. The MRP
4. The CRP

8-54. For combat system elements that are equipped with alignment telescopes, what type of alignment reference marks are established?

1. Centerline reference marks
2. Offset centerline reference marks
3. Bench marks
4. Telescopic reference marks

8-55. What type of checks is used as a ready reference to verify gun system alignment?

1. Bench mark readings
2. Star checks
3. Theodolite
4. Tram checks

8-56. A tram reading determines system alignment in what manner?

1. By placing a known distance between two fixed points
2. By measuring the distance between two known points
3. By establishing the distance between two fixed points
4. By reading train and elevation angles while at known angles to the WCRP

8-57. Tram reading are taken by moving the gun in both directions several times with the results averaged for what reason?

1. To account for play in the indicator dials
2. To detect lost motion in the gear trains
3. To allow for wear in the air drive motor
4. To allow for roller path equalizer input

8-58. How should you train the gun before taking elevation tram readings?

1. Move the gun to zero degrees in train
2. Move the gun to 2000 minutes in elevation
3. Move the gun to 90 degrees from the bearing of the high point
4. Move the gun to 180 degrees from the bearing of the high point

8-59. What is the function of gun mount star checks?

1. To align the director to a bench mark
2. To verify alignment of the gun mount to the reference tram readings
3. To establish parallelism between the gun and the WCRP
4. To verify parallelism between the gun and the WCRP

8-60. What information source is used as the baseline for weapon system alignment verification?

1. The SCLSIS log
2. The last star checks
3. The last alignment report
4. OP-762

8-61. What section of the smooth log is used to determine spare parts available for your system?

1. B
2. C
3. F
4. J

8-62. What type of preventive maintenance procedures are NOT found on MRCs?

1. Lubrication procedures
2. Equipment material condition
3. Fluid level checks
4. Inspection of some adjustments

8-63. When, if ever, is it appropriate to lubricate mechanical equipment more often than is called for on the MRC?

1. During heavy operational conditions
2. During equipment layup
3. During prefire checks
4. Never

8-64. What problem(s), if any, can occur due to dirt and dried hydraulic fluid being allowed to collect on your equipment?

1. Mechanical adjustments can slip
2. Equipment damage can go undetected
3. Hydraulic leaks can go undetected
4. None

8-65. Which of the following is NOT a cause of gun mount mechanical equipment misalignment?

1. Wear
2. Slippage
3. Dirt and dried hydraulic fluid accumulations
4. Twisting of the ship's hull

8-66. What, if anything, is the difference between a maintenance man and a maintenance man's helper?

1. A maintenance man knows how to use all the tools available to him, such as MRCs, technical manuals, and common sense; a maintenance man's helper can only perform minimum skill tasks, such as PMS
2. A maintenance man is senior in rank to a maintenance man's helper
3. A maintenance man has been in the Navy longer than a maintenance man's helper
4. Nothing

8-67. Which of the following statements represents the ideal situation for the identification and repair of gun mount casualties?

1. To have the gun quit working during a firing operation then find and repair the casualty
2. To discover a problem while performing prefire checks then find and repair the casualty
3. To discover the problem while performing routine preventive maintenance then find and repair the casualty
4. To routinely replace gun mount components before they show any sign of wear of defect

8-68. which of the following personal attributes should improve your ability to identify and repair gun mount/GMLS casualties as they occur?

1. A good understanding of PMS
2. A thorough understanding of how your gun mount/GMLS works
3. A thorough understanding of PMS
4. A thorough knowledge of mDS

8-69. Which of the following is a good indication that you have a problem with your preventive maintenance habits?

1. You routinely find casualties of potential casualties while performing preventive maintenance
2. You routinely experience casualties while performing preventive maintenance
3. You routinely experience casualties while conducting firing exercises
4. You rarely experience casualties while firing the gun

8-70. Which of the following information is crucial to scheduling gun mount overhaul work?

1. Preventive maintenance records
2. The gun system supply log
3. Gun casualty documentation
4. The verbal recommendations of the division officer

8-71. Which of the following phrases best describes viscosity?

1. The number of specified uses for a certain lubricant
2. The prescribed temperature range for a certain lubricant
3. A lubricant with additives
4. The thickness of a lubricant

8-72. what term describes a lubricant's reaction to temperature variations?

1. Viscosity
2. Viscosity index
3. Temperature index
4. Temperature stability

8-73. What term describes the lowest temperature characteristic of a lubricant?

1. Flash point
2. Oiliness
3. Flame point
4. Flow point

8-74. Which of the following signs indicates the deterioration of a lubricant?

1. The inspection date stamped on the container has been reached or passed
2. Oil puddles form on the surface of grease after being stored for a while
3. The lubricant changes color
4. The lubricant has been exposed to open air for more than 14 days

8-75. In addition to lubrication, what other function(s) is/are performed through the use of lubricants?

1. Corrosion prevention only
2. Corrosion prevention and oxidant removal
3. Seal out contamination
4. Collection and removal of oxidants from the system only

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